Dr. Waterston

ıme 47 Title-page and Index Issued May, 1969

Review of applied mycology

COMMONWEALTH MYCOLOGICAL INSTITUTE
VIII A
11 JUN 1969

C·A·B

REVIEW OF APPLIED MYCOLOGY

COMPILED FROM WORLD LITERATURE ON PLANT PATHOLOGY

Volume 47

COMMONWEALTH MYCOLOGICAL INSTITUTE
KEW, SURREY, ENGLAND
1968

Commonwealth Agricultural Bureaux

EXECUTIVE COUNCIL: M. K. A. AGYEMAN (*Chairman*), Ghana; E. SEIGNORET (*Vice-Chairman*), Trinidad & Tobago; W. G. ALEXANDER, C.B.E., F.R.S.E., United Kingdom; W. L. HANEY, Canada; R. F. TURNBULL, Australia; V. ARMSTRONG, PH.D., New Zealand; A. J. KIDWAI, India; M. NABI BUKHSH, PH.D., Pakistan; A. NESARATNAM, Ceylon; Mrs. Z. ZULKIFLI, Malaysia; O. A. SOETAN, Nigeria; (To be appointed), Cyprus; His Excellency the High Commissioner for Sierra Leone; (To be appointed), Tanzania; The Deputy High Commissioner for Jamaica; J. NTIMBA, Uganda; His Excellency the High Commissioner for Kenya; F. C. MAKOZA, Malawi; E. S. KAPOTWE, Zambia; M. B. WADDA, The Gambia; A. A. MOHAMED, Guyana; S. C. CORBIN, Barbados; ——, Rhodesia; R. L. BAXTER, Dependent Territories.

Secretary: Sir THOMAS SCRIVENOR, C.M.G.

Asst. Secretary: N. G. JONES.

COMMONWEALTH MYCOLOGICAL INSTITUTE

Director & Editor: A. JOHNSTON, B.SC., A.I.C.T.A.; *Assistant Director*: C. BOOTH, PH.D.

Scientific Information Officers: P. BASU, B.SC., N. CHURCHICH, B.A., M.PHIL., F. DUROCHER YVON, M.B.E., DIP.AGRIC., P. HOLLIDAY, M.A., E. B. MARTYN, B.A., A.I.C.T.A., Mrs. P. M. REID, M.SC., Mrs. I. M. ROSS, S. R. K. SHARMAN, M.SC., J. M. WATERSTON, PH.D., A.I.C.T.A.

Mycologist: M. B. ELLIS, PH.D.; *Assistant Mycologists*: F. C. DEIGHTON, O.B.E., M.A., Miss J. E. M. MORDUE, PH.D., Mrs. A. H. S. ONIONS, PH.D., E. PUNITHALINGAM, PH.D., A. SIVANESAN, PH.D., Miss D. J. STAMPS, PH.D. (Assistant Editor), Miss P. M. STOCKDALE, B.SC. (Assistant Editor).

Bacteriologist: J. F. BRADBURY, PH.D.

The Editor gratefully acknowledges assistance with this volume from Mrs. V. J. DRING, B.SC., and Mrs. A. R. GRANT, M.A.

LIAISON OFFICERS

UNITED KINGDOM: W. E. BERRY, B.SC., PH.D., Agricultural Research Council, 160 Great Portland Street, London, W.1.

CANADA: G. M. CARMAN, B.S.A., M.SC., PH.D., Director, Information Division, Department of Agriculture, 1105 Sir John Carling Building, Ottawa, Ontario, Canada.

AUSTRALIA: P. F. BUTLER, M.AGR.SC., C.S.I.R.O., Box 109, Canberra City, Canberra, A.C.T., Australia.

NEW ZEALAND: I. L. BAUMGART, B.A., B.SC., Department of Scientific and Industrial Research, P.O. Box 8018, Wellington, C.I., New Zealand.

INDIA: B. P. PAL, M.SC., PH.D.(Cantab), F.L.S., F.R.H.S., F.B.S., F.N.I., Director-General, I.C.A.R., Krishi Bhavan, New Delhi 1, India.

PAKISTAN: Director, Department of Plant Protection, Ministry of Agriculture and Works, Jinnah Avenue, Malir Halt, Karachi, Pakistan.

CEYLON: J. W. L. PEIRIS, B.SC., PH.D.(Lond.), D.I.C., DIP.AGR.(Lond.), Deputy Director of Agriculture (Research), Department of Agriculture, Peradeniya, Ceylon.

© Commonwealth Agricultural Bureaux 1969

Printed in Great Britain by The Eastern Press, Ltd., London and Reading

HANA: The Executive Secretary, Ghana Academy of Sciences, P.O. Box M.32, Accra, Ghana.

ALAYSIA: Permanent Secretary to the Ministry of Agriculture and Co-operatives, Swettenham Road, Kuala Lumpur, Malaya.

GERIA: Director of Agricultural Research, Department of Agricultural Research, Moor Plantation, Ibadan, Nigeria.

PRUS: R. MICHAELIDES, Director of Agriculture, Nicosia, Cyprus.

ERRA LEONE: The Research Coordinator, Njala University College, University of Sierra Leone, Njala, Sierra Leone.

NZANIA: The Director of Agriculture, P.O. Box 9071, Dar-es-Salaam, Tanzania.

MAICA: W. G. STUART, M.SC., D.I.C.T.A., Chief Technical Officer, Ministry of Agriculture and Lands, P.O. Box 480, Kingston, Jamaica.

RINIDAD AND TOBAGO: Chief Technical Officer (Agriculture), Ministry of Agriculture, Industry and Commerce, St. Clair, Port of Spain, Trinidad, W.I.

GANDA: The Commissioner for Agriculture, Ministry of Agriculture and Co-operatives, Department of Agriculture, P.O. Box 2, Entebbe, Uganda.

ENYA: S. D. GATHIUNI, Under Secretary, Ministry of Agriculture and Animal Husbandry, P.O. Box 30028, Nairobi, Kenya.

ALAWI: H. B. AMBROSE, B.SC.(Lond.), DIP.AGRIC.(Cantab.), Chief Agricultural Research Officer, Ministry of Natural Resources, P.O. Box 34, Zomba, Malawi.

AMBIA: Permanent Secretary, Ministry of Agriculture, P.O. Box 197, Lusaka, Zambia.

HE GAMBIA: L. J. MARENAH, B.SC.(Hons.), PH.D., DIP.AGR.(Cantab), D.T.A., Director of Agriculture, Department of Agriculture, Cape St. Mary, The Gambia.

UYANA: C. P. KENNARD, M.SC., D.I.C.T.A., Principal Agricultural Officer (Research), Ministry of Agriculture, Georgetown, Guyana.

ARBADOS: Chief Agricultural Officer, Ministry of Agriculture, Labour and National Insurance, Crumpton Street, Bridgetown, Barbados.

HODESIA: D. H. SAUNDER, M.B.E., M.SC., PH.D., Assistant Director, Research and Specialist Services, Ministry of Agriculture, P.O. Box 8108, Causeway, Salisbury, Rhodesia.

EPENDENT TERRITORIES: A. R. MELVILLE, C.M.G., B.SC., A.I.C.T.A., Agricultural Adviser, Ministry of Overseas Development, Eland House, Stag Place, Victoria Street, London, S.W.1.

EPUBLIC OF IRELAND: S. P. CUFFE, Department of Agriculture and Fisheries (Development Division), Dublin 2.

ERRATA

VOLUME 45

Abstract No. 343c line 2 for 'French' read 'British'

VOLUME 46

2472	3	for '459–447' read '459–477'
2838	7	for 'oak' read 'plant'

VOLUME 47

452	1	for 'PARBERRY' read 'PARBERY'
844	1	for 'MILLER, V. L.' read 'MILLER, V. L. & GOULD, C. J.'
914	9	for 'usually 2' read 'usually more than 2'
1124	1	for 'CALAVAN, A. C.' read 'CALAVAN, E. C.'
1155	1	for 'ZANDWOORT' read 'ZANDVOORT'
1708	3	for 'yellows' read 'yellowing'
	7	for 'mild yellows' read 'mild yellowing'
2109	1	for 'DE ZOETEN, C. A.' read 'DE ZOETEN, G. A.'
2219	10	for '*maculans*' read '*macularis*'
2273	1	for 'NEELY, N.' read 'NEELY, D.'
2584q	2	for 'mild yellows' read 'mild yellowing'
3076	1	for 'BAMBADIAN' read 'BAMDADIAN'
3288	1	for 'LOVIE' read 'LOUIE'
3609	4	for '**90**' read '**25**'

Vol. 47

INDEX OF AUTHORS

Abbott, E. V., 2825
Abdel-Raheem, A., 3305d
Abd-El-Rehim, M. A., 1971, 3580
Abdullaev, S. G., 562
Abelentsev, V. I., 1763, 3328
Abiko, K., 2212
Abney T. S. 2152
Abo-El-Dahab, M. K., 3457
Abraham, P., 589
Abreu, C. P. De, 822
A'Brook, J., 2584f
Abu Salih, H. S., 1457
Acedo, G. N., 2590f
Acosta, P. P., 1578
Adam, J. W., 1376a
Adams, A. N., 960, 3640
Adams, P. B., 2615, 2408, 3669g
Addison, E. A., 3074
Adebayo, A. A., 2438
Afanasiev, M. M., 2216
Afscharpour, F., 395k, 1163, 1410
Agaeva, Z., 2127
Agarwal, G. P., 2718
Agarwala, R. K., 3060a, 3154
Agnihothrudu, V., 2655
Agnihotri, J. P., 435
Agnihotri, V. P., 443, 1028, 3596
Agrawal, S. C., 1845
Agrios, G. N., 2590f
Agulhon, R., 392a
Ahmad, S. T., 2660, 3476
Ahmed, A. M., 3219c
Ahmed, L., 2232, 2604, 2801
Ahmed, S. I., 3673
Ahmedunnisa, M., 3673
Aichele, M. F., 401c
Ainsworth, G. C., 402, 445, 3676
Aist, J. R., 3376
Akai, S., 518, 930, 1099, 1869, 1870, 1871, 2605, 2627, 2931, 2946, 3429, 3547, 3657
Akar, K., 3647
Akhavizadegan, J., 1579
Akhmedov, D. S., 584
Akhmedov, S. A., 1595
Akhmedova, F. G., 1037
Akhtar, C. M., 3016
Akinrefon, O. A., 2402, 2438, 3718
Akira, M., 3716
Aksenova, V. A., 363, 1997
Aksu, S., 1994
Albouy, J., 3134
Albrechtová, L., 3533, 3534
Alconero, R., 1427, 1347, 2960f
Aleksandrov, I. N., 2122
Aleksandrova, I., 3464
Aleksić, D., 1451
Aleksić, Z., 1349, 1451
Aleksiev, A., 2834
Aleksiev, D., 260
Aleshin, E. P., 3411
Alexandrescu, A., 397h, k, 1377m
Alexandri, A. V., 397k, 1377i, 3164, 3173
Alexopoulos, C. J., 2038
Alghisi, P., 154, 2356a, d
Ali, G. M., 2982, 3686
Ali, M. A., 3664d
Alippi, H. E., 2182
Allam, M. E., 752
Allan, R. E., 1088
Allen, E. H., 3193
Allen, M. W., 986f
Allen, P. J., 1581
Allen, R. M., 192
Allen, S., 3301g
Allen, W. R., 1620, 2426
Allison, C. C., 3201
Al-Sohaily, I. A., 166
Alvim, P. de T., 3005
Alyab'eva, G. I., 3542
Amani, 3315
Amberger, A., 2678
Amin, K. S., 2432
Amos, R. E., 658
Amponsah, J. D., 781b
Ampuero, C. E., 1469
Anand, S. C., 115, 3088
Anastasyan, B. G., 1464
Anderer, F. A., 1661
Anderson, A. L., 2365
Anderson, E. J., 1631
Anderson, G. W., 3233
Anderson, J. L., 2777
Anderson, N. A., 3125
Anderson, R. E., 1606
Anderson, R. L., 3233
Andreeva, E. I., 1841, 3329
Andreeva, L. T., 278
Andreucci, E., 1152
Andrewes, C. H., 2099
Angell, F. F., 3669f
Anglade, P., 1374b, 1860
Angus, A., 84
Anikster, J., 137
Anjaneyulu, A., 3293
Antkowiak, J., 2576
Antoine, R., 3198
Antonova, G. G., 2895
Anuwongse, B., 929
Aoki, N., 3155
Apeland, J., 391c
Apetri, V., 1178
Apparao, A., 2927, 3293
Apple, J. L., 889
Aragaki, M., 2783
Aragno, M., 1974
Araujo Caldas, R., 3213
Arentsen, S., 942
Arif, A. G., 2924
Arimura, M, 2624
Arkhipova, V., 2258
Armstrong, D. J., 2374
Armstrong, G. M., 695
Armstrong, J. K., 695
Arneson, P. A., 1300, 2559
Arnold, D. R., 1401
Arnold, M. H., 3123
Arnold, W. R., 3305a
Arnott, H. J., 2736
Arsen'eva, M. V., 3311
Arsenijević, M., 1530
Artem'eva, N., 1166
Arya, H. C., 498, 1113i, 3100
Asada, Y., 1340
Asare-Nyako, A., 1524
Asatani, M., 1736
Ashour, W. E., 1525
Ashrafi, S. H., 3686
Ashworth, L. J., 1574
Askarova, S. A., 213, 1139, 1140, 3455
Askerov, I. B., 2009
Asomaning, E. J. A., 1472
Assawah, M. W., 3515
Astapov, N. I. 3719
Asuyama, H., 656, 657, 3384, 3672
Atabekov, I. G., 487, 501, 3557
Atkey, P. T., 390q, 840
Atkins, J. G., 1117, 1540
Atkinson, M. R., 2626
Aubé, C., 2625
Aujla, S. S., 375
Aulakh, K. S., 3218
Ausemus, E. R., 2450
Avezdzhanova, G. P., 642
Avizohar - Hershenzon, Z., 2614
Ayad, M. R., 1868
Ayesu-Offei, E. N., 30
Azeri, T., 2163
Azevedo, J. L. de, 743, 1338
Azimov, A. S., 3434

Babayan, A. A., 1666
Babighian, A., 154
Babinski, P. L., 3478
Babos, M., 324
Babović, M., 265
Babu, C. N., 303
Babushkina, I. N., 2407
Bacon, J. S. D., 2397
Badura, L., 1019
Badurowa, M., 1019
Baerecke, M.-L., 604
Bagautdinova, L. K., 175
Bagga, H. S., 55, 533, 1040, 1575, 3122, 3488
Baggett, J. R., 372
Baggiolini, M., 2761

Bagnall, R. H., 2808, 3183
Bagoyo, A. C., 2831
Bagyaraj, J., 808
Bahadur, P., 1769e
Bahl, N., 130
Baicu, T., 3173
Bailey, B. E., 2013
Bailey, C. H., 2525
Bailey, D. L., 391g
Bailey, L., 737b
Bailey, R. A., 1356
Bailey, W. K., 958
Bailiss, K. W., 3212
Bain, D. C., 3305b
Bairakimov, S. I., 1836
Bajaj, B. S., 3338
Bajpai, G. K., 3660
Bakel, J. M. M. Van, 1996
Baker, E. P., 1481, 1482
Baker, G. M., 2376
Baker, J. E., 1255
Baker, J. J., 837
Baker, K. F., 88, 986, 1426, 1428, 3017
Baker, L. A. E., 1611
Baker, P. W., 997
Baker, R., 898
Bakhetia, D. R. C., 3254
Bakos, Z., 1940
Bakshi, B. K., 644, 1003, 1767, 3605
Balasubramanian, A., 1406, 1424
Baldacci, E., 2103
Ball, E. M., 1078, 3410
Ballio, A., 3666g
Balmer, E., 821, 822, 823, 829, 1565
Bamdadian, A., 1835, 3076, 3097
Bancroft, J. B., 3277, 3278
Banerjee, A. K., 81, 2800, 3660
Banerjee, C. K., 744
Banerjee, S. K., 818
Banfield, W. M., 3581
Banks, G. T., 423
Bannur, B. B., 3337
Baranyay, J. A., 2852
Barbe, G. D., 2178, 3460
Barboza, C. N., 1381b, h
Bard, J., 3582
Bard, M. D., 754
Bareel, Y., 1706
Barioni Gusman, A., 3213
Barkai-Golan, R., 2717, 2780, 3045
Barker, K. R., 2076, 2591
Barksdale, T. H., 894, 2560, 3669e
Barnes, M., 2090
Barnett, R. D., 133
Barr, D. J. S., 3658
Barr, M. E., 3033
Barrat, J. G., 2764, 3499
Barrel, Y., 2901
Barrett, C. J., 1552
Barrios, A., 2007
Barron, G. L., 739, 978b
Barros N., O., 2323
Barry, B. D., 151
Bartels, R., 394e, 395e, 2357f, 2647
Bartley, B. G. D., 781b, c
Barton, G. M., 672
Barton, L. V., 1385
Bartoš, P., 113, 134, 1824, 2454
Baruah, P., 1954
Bashaeva, E. G., 3046
Basham, J. T., 649, 924, 1973
Basit, A. A., 2675
Basith, M., 2595
Basova, L. P., 3682
Bassett, C., 665
Basso, L. C., 3213
Bastos Cruz, B. P., 821
Basu, P. K., 1724
Basu, S. N., 2396
Basu-Chaudhary, K. C., 2818
Bateman, D. F., 955, 2005, 3666i
Bath, J. E., 1346, 2577
Batikyan, S. G., 3126
Batra, G. K., 637
Batra, K. K., 3353
Batra, L. R., 1788
Batra, S. K., 163, 422, 3338
Baudin, P., 3065
Bauer, M., 2006
Baumann, G., 246, 1601
Bauske, R. J., 1610, 1921
Bavendamm, W., 929
Baxby, P., 3024
Baxter, D. V., 3221
Bazhina, E. V., 1027
Bean, G. A., 551, 2058
Beauchamp, É. G., 3617
Bebbington, R. M., 1743j
Beccari, F., 2782
Beceresca, D., 97, 131, 482
Bech, R., 983
Bechet, R., 3198
Beck, W., 2461
Becker, G., 1989, 3251
Beckman, C. H., 2435, 2848, 3166
Bečková, E., 1227, 2545
Beczner, L., 1743b, 1744b
Bedi, P. S., 374, 1144
Bedigian, D., 2053
Beemster, A. B. R., 1228, 1229
Beereboom, J., 2796
Behboudi, B., 3176
Behr, L., 1358
Beijersbergen, J. C. M., 231, 3666s
Békési, P., 1940
Bekker, É. É., 403
Bekker, Z. É., 1142, 2484, 2726, 3447
Beliram, R., 2119, 2314
Bell, A. A., 31, 702
Bell, D. K., 58, 834, 962, 2079, 2338, 2928
Bell, W. R., 330
Belli, G., 1158, 2790
Belli, G. G., 1158, 2790
Bellu, V., 397i
Bel'skaya, S. I., 296
Belyaeva, V. B., 631, 973
Belyanchikova, Yu. V., 1474, 2124
Bencsics, M. Sz., 2427
Benda, G. T. A., 893
Bendelow, V. M., 1852
Benedek, T., 1031, 3371
Benedict, R. G., 22
Benítez, C. E., 1381m
Bennett, C. W., 893, 986j, 2312, 3257
Bennett, M., 250, 2198, 2199
Benson, A. P., 2806
Benson, C. W., 2844
Bent, K. J., 418
Benzie, J. W., 1694
Ber, O. É., 2209
Beraha, L., 3681
Bercks, R., 395b, 583, 1214, 2643
Berezovskaya, E. A., 588
Berg, L. A., 2221
Berger, P., 306
Bergman, B. H. H., 231
Bergman, E. L., 391a
Bergman, H. H., 3666s
Bergman, O., 2892
Bergquist, R. R., 2590k
Bernaerts, M., 1754
Bernardo, F. A., 220
Bernaux, P., 46h
Berry, R. A., 2910
Berthier, G., 98
Bertrandy, J., 1231
Bertus, A. L., 2737
Bestagno, G., 2356f
Bettencourt, A. J., 1132
Betto, E., 2103, 2537, 2829
Beute, M. K., 952
Beutel, J. A., 1191
Beuzenberg, M. P., 3131, 3459a
Bhagwat, V. Y., 826
Bhalla, R. B., 522, 1877
Bhargava, K. S., 2704
Bhaskaran, S., 1728
Bhatnagar, G. C., 194, 819
Bhatnagar, P. S., 789
Bhatt, D. D., 1069
Bhattacharya, P. K., 1827, 1828
Bhattacharyya, N. K., 2712
Bhattacharyya, S. K., 3168, 3514
Bhatti, D. S., 3199
Bhide, V. P., 826, 2670
Bhowmik, T. P., 1113g
Bhullar, G. S., 115
Bhumbla, D. R., 199
Biddle, P. G., 3219d
Biehn, W. L., 2333
Biesbrock, J. A., 1792
Bigornia, A. E., 1223
Bilgrami, K. S., 1769g
Bindra, O. S., 3254
Binns, F., 423
Birchfield, W., 1566
Bird, L. S., 3124, 3305d
Birkel', M. R., 2175
Bîrliga, V., 3312
Bisessar, S., 1267
Bisht, N. S., 81
Biss, J. M., 892
Bjorndal, H., 2406
Black, L. L., 1218, 2310, 2898, 3669d
Blaha, G., 90, 1813
Blair, I. D., 2118
Blakeman, J. P., 24, 1154, 1905, 3698

Blassinski, 1156
Blaszczak, W., 245, 2574, 3483
Blattný, C., 3057
Bleiholder, H., 1733
Blinov, V. A., 1929
Block, P., 977
Blodgett, E. C., 257, 401c, 580
Blomqvist, H. H., 2661
Blomstrom, R., 2872
Bloomberg, W. J., 2881
Blue, R. L., 1552
Blume, P., 2091
Bobeş, I., 3091, 3275, 3333
Bochkareva, Z. A., 2134
Bochow, H., 1024
Bockmann, H., 394h
Bode, O., 394e, 2649
Bodnar, P., 3393
Boehm, E. W., 1217
Boelema, B. H., 964, 969, 1357, 2915
Boerema, G. H., 1245, 1442
Bogdanov, A. I., 2136, 2137
Bogovik, I. V., 563
Bogusławski, W., 2339
Bohnen, K., 1189
Bohnenblust, K. E., 1252
Bohus, G., 324
Boisson, C., 85
Bojanowski, J., 155
Bojňanský, V., 3187, 3396
Bokhyan, M. V., 1496
Bolay, A., 1926, 2025, 2539, 2795
Bold, H. C., 2038
Boling, M., 3435
Bollen, W. B., 2570
Bollenbacher, K., 215, 3721
Bolton, A. T., 2321
Bolwyn, B., 3503
Bompeix, G., 1188
Bond, D. A., 242
Bondarevskaya, F. G., 3360
Bondartseva, M. A., 3449
Bonde, M. R., 597g
Bondoux, P., 247, 2205, 2754
Böning, K., 941
Bonnet, R., 1745s
Bonney, J. K., 1074, 3070a, b
Bonotto, S., 3248
Bontea, V., 451, 589, 1213
Boone, D. M., 3488
Boosalis, M. G., 160
Booth, C., 1035a
Boothroyd, C. W., 3431
Borchardt, G., 394e
Bordeleau, L. M., 2375
Bordukova, M. V., 1946
Borecki, Z., 1919
Borisenko, A. N., 1487, 3416
Borodin, G. I., 206, 1012, 1013
Borodulina, A. A., 1138
Bors, J., 2303, 3042
Borum, D. E., 3452
Borzini, G., 396, 417
Bos, L., 2515
Bose, A., 164
Bose, R. G., 2396
Bottorff, F. O., 1618
Boubals, D., 2589
Bouchet, R. L., 1743i
Bouhot, D., 83, 284, 377, 1374f
Boullard, B., 2990
Bourge, J.-J., 367
Bourret, J. A., 2911
Bové, J. M., 1745a
Bovey, R., 735, 2761
Bowman, R. L., 2091
Bowman, T., 2553
Boyd, A. E. W., 611, 1376c, 3541, 3625, 3664b
Boyd, H. W., 884, 1263, 3201
Boyer, M. G., 2567
Boyle, A. M., 827
Boyle, J. S., 391a, 1621
Bracker, C. E., 986h, 1502, 3278
Bradbury, J. F., 1389
Bradley, R. H. E., 2639
Bradley Jones, J., 1063a
Brady, L. R., 22
Brakke, M. K., 101, 1080, 3410
Branas, J., 275
Brandes, G. A., 597c
Brandes, J., 1046, 2649
Brandsberg, J. W., 2409
Brann, J. L., 2934
Brannaman, B. L., 2673
Bratus, V. M., 3226
Braun, A. J., 2775
Braun, H., 614, 878
Bravenboer, L., 1375b
Braverman, S. W., 1591, 2512, 2590a, 3659
Brčák, J., 1805
Bregetova, L. G., 599
Brenchley, G. H., 392d
Brener, W. D., 2848
Brennan, E., 780, 925
Brenneman, J. A., 3742
Bretan, I., 3182
Breuils, G., 1745h
Brezhnev, I. E., 2433
Bridge, M., 2335
Bringhurst, R. S., 3511
Brinkerhoff, L. A., 3124
Briolle, C. E., 3528
Briones, M. L., 151
Brister, C. D., 1546, 3439
Britton, M. P., 2185
Brochard, P., 1299
Brodie, B. B., 2378
Bromfield, K. R., 623
Brönnimann, A., 1484, 2129, 3422
Brook, P. J., 2752
Brooks, D. H., 1375f, 1843
Browder, L. E., 2671, 3413
Brown, A. G. P., 1895
Brown, C. M., 1574
Brown, G. B., 2914
Brown, G. E., 3114
Brown, J. F., 1086, 2665
Brown, S. J., 3123
Brown, W. C., 3412
Browne, F. G., 2270
Bruehl, G. W., 401a, 497, 2131, 2459, 2460, 2680, 2681, 3027, 3424
Brun, J., 3512
Brunt, A. A., 840, 2183, 3901
Brȳnza, A. I., 1997
Buchholtz, W. F., 1921
Buchli, H., 15
Bucht, B., 2406
Buchwald, N. F., 2962
Budde, P. B., 2383
Buddenhagen, I. W., 3165
Budhraja, T. R., 619
Bugaret, Y., 18
Bugbee, W. M., 214, 825, 1894
Bulit, J., 284
Bull, R. A., 1638
Bu'lock, J. D., 995
Bumbieris, M., 1425
Bundy, J. W., 1375r
Bunescu, S., 1377c
Burchill, R. T., 1375k, 2195, 2204
Burges, A., 1780
Burgess, L. W., 124, 1413, 3085, 3086
Burgwin, W. A., 2358e
Buritica, P., 3189
Burke, D. W., 3267
Burki, T., 1206
Burleigh, J. R., 2453
Burmeister, P., 1186
Burmistrov, S. I., 2446
Burns, R. M., 1552
Burrows, V. D., 142
Busch, L. V., 978h
Bush, L., 3077
Bushnell, W. R., 797, 2449, 2666
Bustamante, E., 3189
Butcher, J. A., 1333, 3249
Butin, H., 1990
Butler, E. E., 766, 2083
Butler, R. D., 2810
Butterfield, N. W., 223
Buus Johansen, H., 138
Bȳchenko, N. I., 1634, 3171
Byford, W. J., 692, 946, 1039, 1710, 2584r
Byrde, R. J. W., 1103, 3149, 3692
Cabrera, F., 1381j
Căbulea, I., 397e
Caffey, H. R., 1546
Cagna, A., 2356f
Calavan, E. C., 187, 1124, 1552
Caldwell, R. M., 2440, 2452, 2671
Calonge, F. D., 136
Calpouzos, L., 3259
Calvert, E. L., 3540
Campagna, J.-P., 341
Campana, R. J., 2590j
Campbell, F. J., 223, 3465
Campbell, R., 28, 2089
Campbell, R. N., 2646, 3740
Campbell, W. A., 762, 1029
Campos, H., 823, 1565
Caner, J., 778
Cannon, O. S., 401h
Cano, I. B., 302, 1261
Capoor, S. P., 2167, 3438
Cappellini, R. A., 2796
Capriles De Reyes, L., 94
Caramiello, R., 2389

Cardoso, C. O. N., 953
Carilli, A., 3666g
Carlson, L. W., 691
Carne, I. C., 263
Carpenter, J. A., 409
Carpenter, J. B., 1554
Carpenter, J. M., 2584c
Carr, A. J. H., 1172, 3474, 3665
Carranza, J. M., 1512
Carraut, A., 1924
Carrero Fernandez, J. M., 379
Carroll, R. B., 2590e
Carroll, T. W., 2447
Carter, J. C., 1683
Carter, M. V., 2584h
Carter, W., 1386
Cartia, G., 1881, 1883, 1970
Cartwright, J., 1375n
Carver, R. B., 2533
Casanova, J. R., 1381a, g, i, k
Casida, L. E., 2417
Casper, R., 394g, 2357f, 2641
Cassini, R., 99, 532
Castaño A., J. J., 3185
Castaño, J. J., 3436
Castellani, E., 2853
Castillo, A. V., 2820
Càtara, A., 186, 193, 1878, 1879, 1880, 1881, 1882, 1883, 2715, 2716
Caten, C. E., 2628
Catherall, P. L., 3665b, c, d
Catsimbas, C., 3059a
Caussin, R., 1374q, 3330
Cayford, J. H., 2857
Cayrol, J.-C., 2077
Čech, M., 1804
Celino, C. S., 1551
Cellerino, G. P., 2853
Censi, G., 2356b
Centrella, E., 3707
Ceruti, A., 3706
Cetas, R. C., 597e
Chabelska, C., 46f
Chadburn, B. L., 2677
Chadha, K. C., 978e
Chaduneli, M. D., 1685, 1977
Chahal, D. S., 936
Chakrabarti, N. K., 172, 1113v, 1769i, 2466
Chakravarti, B. P., 103, 162, 411, 738
Chakravarty, D. K., 382, 1359
Chalcroft, J., 1057, 1703
Chalk, T. E., 2733
Chalkley, J. H., 2926
Chamberlain, E. E., 2191
Chambers, J., 2218
Chambers, S. C., 1098
Chambonnet, D., 3297
Chan, Y. H., 978j
Chand, J. N., 195, 217, 1732, 1862, 3089, 3639
Chandova, Zh. S., 2484
Chandra, K. J., 2105
Chandra, S., 1769h
Chandramohan, D., 1113t, 2177, 3451
Chandwani, G. H., 176
Chang, Y., 1006
Channama, L. K. A., 1113j
Channon, A. G., 1063b, 1375s, 3299a, b, c, h, 3616
Chant, S., 1054
Chanturiya, N. N., 1630
Chapa, R. G., 3167
Chapman, J. A., 2086
Chapman, R. A., 1419, 3208
Chapman, R. K., 1346, 2577
Chapman, V., 1834
Charudattan, R., 1421
Chastukhin, V. Ya., 403
Chatrath, M. S., 130
Chattopadhyay, S. B., 683, 3061, 3168, 3514
Chaube, H. S., 1109, 1266, 2705
Chaudhary, S. K., 374
Chauhan, L. S., 508, 3336
Chauhan, R. K. S., 1769k
Chavez, H. B., 827, 3354
Chebolda, V. F., 947
Chee, K. H., 1657, 2822, 3550
Chekirbaeva, S., 1934
Chekunova, L. N., 861
Chelÿsheva, L. P., 673
Chemli, A., 1924
Chemodanova, E. V., 1927
Chen, C.-C., 2846, 3014
Chen, M.-H., 3102
Chen, T., 3246
Chen, Y. H., 1143
Cheney, P. W., 254, 401c, 2765
Chenulu, V. V., 228
Cheo, P. C., 3696
Cherepanova, R. V., 2233
Cheresharov, D., 1673
Chernoivanova, G. A., 3471
Cherotchenko, Yu. P., 2387
Chessin, M., 1050
Chesters, C. G. C., 126, 1154
Chet, I., 2071, 3726, 3727
Chetia, M., 1865
Cheung, D. S. M., 1701
Chi, C. C., 978d
Chiang, M. S., 937
Chiba, O., 2286, 3236
Chick, M., 995
Chien, C. C., 1120
Chilvers, G. A., 2602
Chin, P. Y., 2803
Chinappa, B., 1682
Chinappa, C. C., 3115
Chiu, R.-J., 3102, 3391
Chiykowski, L. N., 102, 1797
Chod, J., 366, 686, 1999, 2508
Chohan, J. S., 121, 196, 2784, 3099, 3287
Chollet, M.-M., 1038
Chona, B. L., 398
Chou, L.-T., 2709
Chou, T. W., 1925
Chowdhury, S. K., 2712
Christensen, J. J., 506, 1528
Christensen, P. S., 668
Christiansen, B. D., 1844
Christiansen, D. W., 187, 1552
Christias, C., 1426
Christie, R. G., 1450, 3053
Christie, S. R., 3653
Christie, T. B. C., 2606
Chu, M., 1423
Chu Chou, M., 3350
Chulkina, V. A., 1344
Chumaevskaya, M. A., 861
Chumakov, A. E., 1808, 3407
Chung, H. S., 2398
Cia, E., 822, 823, 829, 1565
Ciccarone, A., 2770
Civerolo, E. L., 3669c
Clare, B. G., 2626
Clark, F. E., 1780
Clark, M. C., 2401, 2549, 3543
Clark, M. R. M., 1374o
Clark, R. L., 1674, 3214
Clark, W. A., 986r
Clarke, J. H., 2987
Clary, R., 2203, 2968
Clayton, C. W., 3742
Clémençon, H., 2092
Clerk, G. C., 30, 896
Clermont, L. P., 2890
Clifford, B. C., 2440
Clifton, C. E., 9
Clinch, P. E. M., 1951
Cobb, F. W., 354, 1321, 1330
Coblentz, W. S., 1925
Cock, L. J., 2022
Cocking, E. C., 1453, 1963
Coe, G. E., 2313
Cognet, J., 1480
Cohen, E., 2636
Cohen, J., 1394
Cohen, Y., 2832
Coicev, A., 1377e, f
Cojocaru, N., 397d, 1236, 1377g, 1947
Cole, G. T., 3043
Cole, H., 541, 2590d, 2744, 2745, 3093
Coleno, A., 3018
Coley-Smith, J. R., 2932, 3525, 3648
Colhoun, J., 2086, 2810
Collier, J., 167
Collins, C. H., 990
Colvin, J. R., 3039
Coman, T., 1178, 1916, 3164
Combs, M. F., 2055
Comes, I., 397i, 1377c
Compton, L. E., 2671
Comstock, V. E., 3458
Coni, A. C., 2120
Conniffe, D., 3408
Connor, S. R., 3491
Conrad, P. J., 2393
Conroy, R. J., 320
Consigli, R. A., 3319
Conti, E. De, 829
Conti, G. G., 2103, 2829
Converse, R. H., 1623, 2365, 3507
Cook, A. A., 2648, 2950
Cook, R. J., 1818, 2131, 2322, 2681, 3430
Cook, R. N., 551
Cook, R. T., 982
Cooke, R. C., 35, 3029, 3364c
Cooke, W. B., 2392, 2994, 3713

Coombes, C., 3717
Cooper, W. E., 1567, 1572
Coplin, D. L., 1146, 1617
Corbaz, R., 1964
Corbett, D. C. M., 399, 1891
Corcoran, J. W., 995
Cordell, C. E., 1694
Corke, A. T. K., 564, 1375p
Cortés-Monllor, A., 305
Cosmin, O., 1523, 2146
Costa, A. S., 724, 725
Coster, E., 3144
Costonis, A. C., 2590h
Couch, H. B., 3138
Coursey, D. G., 1371
Cousin, M.-T., 1745f
Cowling, E. B., 1992, 2888
Cox, A. E., 1641
Craig, H. M., 2859
Craigie, J. H., 142
Crandall, B. S., 92, 3401
Crawford, J. L., 58
Crête, R., 937, 3612, 3617
Crişan, A., 1995
Crisan, E. V., 458
Crocomo, O. J., 3213
Cronin, E. A., 91
Cronquist, A., 1030
Cropley, R., 2193, 2217, 2519, 2530, 2763
Crosier, W. F., 1414, 1447
Crossa-Raynaud, P., 1924
Crossan, D. F., 3669a
Crosse, J. E., 1375o, 2195
Crowley, M. P., 1951
Crowley, N. C., 2334
Crüger, G., 391e, 394j, 2357d
Cruickshank, I. A. M., 1380e, 1420
Cruz, B. P. B., 707
Csaplinska, S., 1176
Cserjesi, A. J., 360, 3592
Cuillé, J., 1745c
Culp, T. W., 705, 3282
Cunha, J. M. A. E., 2481
Cunningham, C. E., 1953
Cunningham, P. C., 1375e, 3408
Cupşa, I., 1236, 1914
Curl, E. A., 430, 2069, 2412, 3368
Curren, T., 636, 1298, 2342
Curtis, C. R., 698
Curtis, R. W., 2607
Cutcliffe, R. L., 423
Czarnik, W., 2256

Dadant, R., 979
Daebeler, F., 1181
Daft, G. C., 12, 2024, 3636
Daft, M. J., 1457
Daines, R. H., 780, 1202
Dakwa, J. T., 896, 3070c
Dalchow, J., 1580
Dale, J. L., 554
Dale, W. T., 859
Dalela, G. G., 364
Dalmasso, A., 67
Daly, J. M., 784, 1084
D'Ambra, V., 1345
Damon, R. A., 1607
Dance, B. W., 3587
Dancs, Zs., 3148
Dancsné, R. Z., 1743d
Danesh, D., 3262
Danielson, R. M., 3364b
Danilaw, —, 1497
Danilova, V. M., 3619
Dann, V., 2967
Da Ponte, J. J., 2337
Dao, F., 1381d
Darby, R. T., 998
Darke, W. F., 2047
Darker, G. D., 47, 347
Darley, E. F., 3701
Darling, H. M., 1953
Darlington, A., 3313
D'Armini, M., 888, 2788
Darpoux, H., 368
Darrag, I. E. A., 2597
Das, P. K., 182, 811
Dashevskiĭ, I. N., 598
Dashkeev, E. A., 1150
Dashkeeva, K. N., 1058, 1279
Dashwood, P., 3301d
Dässler, H.-G., 248
Daubeny, H. A., 263
Davey, C. B., 3364b
David, Z., 1935
Davide, R. G., 2981
Davidson, A. G., 3220
Davidson, O. W., 2504
Davidson, R. W., 646, 1687
Davidson, T. R., 1620
Davies, H. T., 597b, 1225, 3184
Davis, D., 1295, 2590b
Davis, G. N., 1363
Davis, L. D., 2526
Davis, N. D., 708
Davis, R. E., 2254, 3209, 3669b
Davis, R. M., 1363
Davis, R. T., 2869
Davis, S. H., 925, 2504
Davis, T. C., 2851
Davison, E. M., 3375
Davreux, M., 1222
Dawson, J. R., 719
Dawson, J. R. O., 632
Dawson, M. G., 1843
De Amos, I. G., 1981
Dean, J. L., 1536
Dean, L. L., 3269
Dean, M., 3666j
Deangkinay, M. T., 388
De Armas, E., 755, 2007
Debije, J. B. H., 1743y
Deblois, D., 2696
De Bokx, J. A., 602, 1374r
Debrot C., E., 1381m, 2010, 2011
Dedan, J. K., 668
Deep, I. W., 3504
Defosse, L., 119, 2586c, 3421, 3428
De Hertogh, A. A., 2609
Deighton, F. C., 179, 450
Dekhuijzen, H. M., 697, 3631
Dekker, J., 3666p
Delanoue, P., 737f, 2040
Delassus, M., 1462, 3094
Delatour, C., 345, 3238
De La Tullaye, B., 368
De Ley, J., 1754
Delmas, R., 1745o
Delp, C. J., 3687
Del Rosario, M. S. E., 362
Delvi, M. H., 1113j
Demain, A. L., 995
Demečko, J., 1839, 2197
Dement'eva, S. P., 501
Demetriades, S. D., 3059a
Demidova, L. I., 2945
Demski, J. W., 1621, 3652
Denisov, E. P., 1520
Denward, T., 1241
Denyer, W. B. G., 3244
De Robertis, A., 2215, 2354
De Rojas, C. E. B., 2010, 2011
Desai, M. K., 2656
Desai, M. V., 1885, 3101, 3317
Desai, S. G., 326, 3101, 3317
Deshpande, K. B., 2457, 3355
Deshpande, K. S., 2457, 3355
De Silva, R. L., 620b, 1960
Desmarteau, R., 4a
De Swardt, G. H., 2796
De Tempe, J., 7
Devay, J. E., 1446, 1617, 1656, 3496
Deverall, B. J., 2328, 3666q
Devi, L. R., 654
Dew, D., 2143
De Weille, G. A., 2809
De Wit-Elshove, A., 1722
De Wolfe, T. A., 2485
De Zerpa, D. M., 1381l
De Zoeten, G. A., 986e, 2109
Dhanraj, K. S., 156, 807
Dhanvantari, B. N., 860, 3715
Dhingra, D. R., 199
Dias, H. F., 2107
Dias, M. R. De S., 2078
Díaz Moreno, J., 1234
Díaz Polanco, C., 297, 755, 2007
Dickens, J. S. W., 1063a, 1209, 1906
Dickens, L. E., 2327
Dickerson, O. J., 3074
Dickey, R. S., 1583, 1904, 2498
Dickinson, C. H., 24
Dickinson, D. J., 3648
Diditä, S., 1916
Diego Calonge, F. De, 1850
Dieleman-Van Zaaijen, A., 1f, 1740, 1741
Diem, H. G., 29, 2468
Diener, T. O., 1232, 3562
Diener, U. L., 708
Diercks, R., 732, 2443, 2678
Dijkstra, J., 2855
Dimitri, L., 1306
Dimitrijević, M., 1494
Dimitrov, S., 2138, 2307, 2573
Dimitrovski, T., 1204
Dimock, A. W., 457, 986k, 2506
Dimond, A. E., 2598, 2839, 3357
Dinescu, I., 397j, 1377j

Dinoor, A., 2470
Diringer, H., 1661
Dirks, V. A., 3405
Disapthorn, S., 1115
Disbrey, B. D., 56
Dittmar, H. F. K., 2120
Dizit, L. A., 1113q
Djaczenko, W., 2110
Doane, F. W., 2107
Docea, E., 987, 1213
Dochinger, L. S., 913
Dodge, F. N., 2278
Dodman, R. L., 2591
Dodov, D., 1485
Dohre, S. R., 967
Doi, Y., 656, 657
Doling, D. A., 1833, 2687, 3418
Dolinka, B., 1743n
Doma, S., 1400, 3690
Domański, S., 323, 927, 1331, 2563
Domsch, K. H., 1781, 2087d
Donaubauer, E., 2877
Donchev, N., 491, 492, 1485, 2456
Doppelbaur, H., 2080
Dorendowa, M., 1071
Dorozhkin, N. A., 296
Dos Santos, A. C., 2414
Doupnik, B., 1856
Dowler, W. M., 261
Downes, M. J., 1784
Doyle, A. D., 2253
Doyle, J., 401d
Dransfield, M., 2587
Drew Smith, J., 2511
Driver, C. M., 1250
Dubonosov, T. S., 232, 3403
Ducrot, V., 2795
Dudka, I. O., 2082
Dueck, J., 797
Duffus, J. E., 777
Dugger, W. M., 3700e
Duich, J., 2744, 2745
Dumitras, L., 451, 1842
Duncan, C. G., 682
Dunin, M. S., 1377l, 2113
Dunleavy, J., 2578
Dunn, E., 1248
Dunning, R. A., 2584q
Dupias, G., 46i, j
Duployez, C., 3706
Duran, R., 2184, 3036
Durbin, R. D., 145, 1300, 2559
Durdević, B., 1614
Durgapal, J. C., 593, 813, 1547, 1942, 1959
Durrell, L. W., 3377, 3675
Dvornic, V., 585
Dwinell, L. D., 2276
Dwivedi, R. S., 2070
Dyachina, Zh. S., 1491
D'yakov, Yu. T., 292, 420, 1042, 2329, 3015
Dyaneswaran, A. N., 407
Dyck, P. L., 1830, 1831
Dymshakova, G. M., 1396
Dzhafarov, S. A., 1373
Dzhavakhiya, V. G., 3557
Dzhiembaev, Zh. T., 1463
Dzhilyanov, L., 260
Dzidzariya, O. M., 549
Ebbels, D. L., 951, 2584n
Ebben, M. H., 390a, 719, 3571
Eboh, D. O., 3583
Ebrahim-Nesbat, F., 1668
Echandi, E., 1560, 1723
Eckblad, F.-E., 992, 3373
Eckert, S. W., 986n
Eckstein, D., 933
Economides, C. V., 188, 3113
Edgington, L. V., 613, 739, 978b, 1852
Edney, K. L., 1151, 1375l, 2204
Eduardo Castro, L., 3092
Edwards, D. I., 1393
Edwards, R., 2143
Edwardson, J. R., 1450, 3053, 3653
Efimenko, O. M., 2403
Egan, B. T., 882
Egawa, H., 1770, 1874
Eglitis, M., 3034
Egorova, L. I., 2236
Egorova, S. V., 2282
Ehlers, J. L., 964
Ehrenfeld K., R., 2312
Ehrlich, H. G., 1829, 2451
Ehrlich, M. A., 1829, 2451
Eisenstark, A., 3319
Ela, V. M., 2831
Elarosi, H., 1971, 3580
El'chibaev, A. A., 3035
Elenkov, E., 970, 2836
El-Esawy, A. A., 27
El Hammady, M., 1743p, z, 3720
El-Helaly, A. F., 3457
Elia, M., 2343
Eliseeva, Z. N., 696
El-Khadem, M., 2015, 2016
El Khalifa, M. D., 3320
Ellen, J., 1348
Ellet, C. W., 2507, 2657
Ellingboe, A. H., 3419
Elliott, C. G., 2399
Ellis, J. J., 3044
Ellis, M. B., 3030
El-Nawamy, A. S., 2041
Elnur, E., 126
Eloja, A. L., 1577
El-Shabassy, A., 205
El-Zayat, M. M., 2247, 2598
El-Zayat, M. M. S. A., 2201
Emechebe, A., 3059c
Emeis, C. C., 2087b
Emel'yanova, N. M., 2986
Emilsson, B., 1235
Emond, F. J., 448
Engelbrecht, D. J., 469, 579, 1624
English, H., 1617, 3496
Engst, R., 2837
Enkina, T. V., 7214
Enns, W. R., 566
Epstein, A. H., 3222
Epton, H. A. S., 2328
Ercegovich, C. D., 3093
Ercolani, G. L., 2757, 2759, 2843, 3575
Erdélyi, K., 1743s
Eren, J., 3028
Eriksson, K.-E., 2406
Eriksson, O., 763
Erkal, U., 849
Ershad, D., 2114
Erviö, L.-R., 1173
Erwin, D. C., 1242, 2172, 2485, 2486, 3117
Eşanu, V., 622
Esau, K., 986g
Escobar, C., 952
Eskandari, F., 3601
Eskarous, J. K., 2740
Esser, R. P., 3321
Estes, A. P., 101
Etheridge, D. E., 1982
Etheridge, J., 2584l
Ettinger, G., 3274
Evans, G., 824
Evans, I. R., 3305h
Evans, S. G., 836
Eveling, D. W., 607
Everett, T. R., 3439
Eversmeyer, M. G., 2453
Evlakhova, A. A., 737g, 2975
Evtyushkin, N. I., 2935
Exconde, O. R., 3105
Eyal, Z., 2440
Ezrukh, É. N., 2407

Faber, H., 1163
Faber, W., 1473
Faccioli, G., 3385, 3463, 3481, 3556, 3654
Fahim, M. F., 3633
Falgout, B., 1260
Farghaly, M., 994
Farkas, G., 1744b
Farley, J. D., 3025
Farmer, V. C., 1782, 2397
Farrell, J. A. K., 2013
Fassi, B., 425, 3708
Fatemi, 3098
Fathi, S. M., 1525
Fatmi, A. S., 2587
Faust, M., 1605
Favreau, J., 226
Fawcett, C. H., 2202
Fayret, J., 917
Feder, W. A., 223, 3465
Fedorov, N. I., 1794, 3359
Fedoseenko, L. G., 1396
Fedotova, T. I., 208
Felix, S., 1065, 2930
Fenollera, J. M., 1745t
Fenwick, H. S., 159
Ferencz, V., 3148
Fergus, C. L., 23, 330, 754
Fernandes, N. C., 953
Fernandez-Borrero, O., 1133
Fernando, S. R. A., 1962
Fernow, K. H., 1233
Ferron, P., 737d, 2039
Ferullo, V., 3394
Fidalgo, M. E. P. K., 1752
Fidalgo, O., 1752
Fielding, A. H., 3149
Figueredo, M. B., 765
Filer, T. H., 332, 908, 2849, 3305g
Filippova, G. G., 3574
Filippova, N. I., 2446
Finch, J. T., 1458
Findlay, W. P. K., 1697

Finkner, R. E., 690
Fischer, W. R., 2680
Fisher, F. E., 1128, 1131, 2960c
Fitzgerald, P. J., 1079
Fitzsimmons, R. W., 100
Fleischmann, G., 800, 2441, 2470, 2471, 3075
Fleisher, Z., 257
Flentje, N. T., 1098, 1444, 2626
Fletcher, J. T., 835, 3661
Fliege, F., 1317
Flink, P. R., 3233
Flores, E., 774, 1055, 1056
Flores, H., 3208
Floruţiu, A., 720
Fluijgers, C. W., 2984
Focke, I., 1112
Foddai, A., 816
Fogle, H. W., 2764, 3499, 3669c
Foley, D. C., 157
Folk, G., 1743w
Fontana, A., 424, 425, 3707, 3708
Foong, K. M., 1657
Forbes, I., 1596
Forbes, I. L., 1260
Ford, E. J., 2322
Ford, H. N., 3344
Ford, R. E., 775, 2145
Foreman, B. T., 3408
Forlot, P., 93
Fortin, J. A., 2603
Foslie, M., 3609
Foster, B. G., 2017
Foster, R. C., 1002, 2390
Foursoff, P. J., 1743m
Fox, R. A., 3301d
Francke-Grosmann, H., 646
Francki, R. I. B., 2334, 3388
Frank, Z. R., 2579, 3285, 3286
Frăţila, E., 585, 1213
Frauenstein, K., 1170, 2743
Frazier, N. W., 1625, 1928
Frazier, W. A., 372
Frear, D. E. H., 2978
Frear, D. S., 1898
Frecha, J. H., 2117
Frederiksen, R. A., 167
Freeman, G. H., 201, 475, 2170
Freeman, J. A., 1622, 2219
Freeman, T. E., 1857
Freezaillah bin Che Yeom, 3239
Freitag, J. H., 474
Freitas, A. P. Do C. E., 493
French, D. W., 659, 3233
Frezzi, M. J., 963
Frias, L. C. L., 1467
Frič, F., 2465
Fridlund, P. R., 570, 1192, 1618
Friedman, B. A., 950
Friend, R. J., 2056
Fritzsche, R., 70, 221
Frolov, I. P., 86
Frosheiser, F. I., 243
Frossard, P., 1931, 3513
Frost, R. R., 461
Froyd, J. D., 659
Fuchs, A., 105, 788, 1085
Fuchs, E., 114
Fujisawa, I., 684
Fukutomi, M., 518, 2627, 2931, 3429
Fuller, W. H., 772
Fulton, J. P., 2316
Fulton, N. D., 215, 3721
Fulton, R. W., 843, 2651, 3156, 3206, 3559
Funderburk, H. H., 430, 2412
Funk, A., 671, 1696, 2571
Funk, C. R., 3478
Futrell, M. C., 167, 2587, 3305b

Gáborjányi, R., 2427
Gadgil, P. D., 1985
Gaertner, A., 2955
Gafoor, A., 3743
Gagnon, C., 652, 905
Galan, C., 1912
Galietta, G. J., 1207
Galindo, J. A., 1221
Gallagher, P. A., 711
Gallegly, M. E., 1777, 2400, 2608, 3742
Gallegos, H. M. L., 2995, 3177
Galli, F., 884, 895, 1565
Gallo, F., 3343
Gallo, P., 3343
Galochkina, L. A., 3411
Galstyan-Avanesyan, S. Kh., 1478
Galuşinschi, A., 3971
Gálvez E., G. E., 1116, 1542, 1543, 2157, 2535, 3103
Gambetta, A. M., 3247
Gambogi, P., 3331
Gámez, R., 3391
Gams, W., 1096, 1781
Gandhi, A. B., 326
Gandy, D. G., 390e, 728
Gangopadhyay, S., 3179
Ganguly, D., 176
Ganney, G. W., 3661
Garadagi, S. M., 1595
Garber, E. D., 2372
Garcia, M. U., 220
Gardner, W. S., 1498
Garibaldi, A., 222, 2356g, 3128, 3290
Garibova, L. V., 1742, 2954
Garnier, J., 25
Garofalo, F., 694, 714
Garrard, E. H., 409
Garraway, M. O., 1774, 2394, 3722
Garren, K. H., 3644
Garrett, C. M. E., 2195, 2206
Garrett, M. K., 2052
Garrett, R. G., 365
Garrett, S. D., 1097, 2070
Gärtel, W., 272, 2357j
Gartner, A., 2087c
Garud, A. B., 2787
Gasha, T., 1772
Gaskill, J. O., 2313
Gautero, C., 3710
Gavarra, M. R., 1577
Gavrilov, A. A., 496
Gay, J. D., 2913, 3392
Gayed, S. K., 978n, 1285
Gazikhodzhaeva, M. A., 3447
Gentile, I. A., 3573, 3666f
Geoghegan, W. G., 1376i
Georgiadis, E., 1402
Georgopoulos, S. G., 9861, 1402
Gerdemann, J. W., 2993
Gergácz, J., 3585
Gerini, V., 2782
Gerlach, W., 1165, 2180, 2739
Gershon, H., 2599
Geshele, É. É., 1493
Getts, B. V., 947
Ghabrial, S. A., 3627
Ghaffar, A., 216, 2436, 2613, 2816
Ghanea, S. M., 3064
Ghei, O. K., 3319
Ghena, N., 397a, 605, 1948
Gheorghiu, E., 397b, 1178, 1236, 1377m
Ghosh, A., 163, 1114
Ghosh, A. K., 26
Ghosh, B. L., 2396
Ghurde, V. R., 3083
Giamalva, M., 1260
Giannotti, O., 2043
Gibbons, R. W., 959
Gibbs, A. J., 1458, 1725, 2421, 3301n
Gibbs, J. N., 348, 3229
Gibson, I. A. S., 668, 1379e
Gibson, K. E., 945
Gibson, M., 3299a
Gicherman, G., 2422
Gierczak, M., 1318
Gifford, E. M., 865
Gilbertson, R. L., 2297
Giles, D., 1376h
Gill, C. C., 485, 3090
Gill, D. L., 841
Gill, H. S., 2778, 2779
Gillaspie, A. G., 300
Gilléron, F., 1964
Gilmer, R. M., 572, 2224, 3517
Gilmore, A. E., 3712
Gilmore, E. C., 2450
Gilmour, J., 3664a
Gilmour, J. W., 351, 919, 3237
Gindrat, D., 2025, 2266
Ginns, J. H., 1976, 3241
Ginsborg, L., 2796
Girard, D. H., 3705
Gitman, L. S., 1900
Giussani-Belli, G., 1725
Gjaerum, H. B., 1603, 1680
Glaeser, G., 968, 2030, 3613
Glaze, N. C., 2378
Glits, M., 1743h
Glubrecht, H., 2303
Gochenaur, S. E., 916
Goel, L. B., 2154, 2686
Goeldner, H., 2225
Goethals, M., 1713
Goheen, A. C., 2789
Gokhale, V. P., 1896
Goksøyr, J., 1417
Golato, C., 700, 2782, 2826

Gold, A. H., 473, 777, 2911
Gol'din, M. I., 2262, 3471
Gołębiowska, Z., 1814
Golovin, P. N., 1387, 3311
Golubinskaya, N. S., 1001
Golŷshin, N. M., 386, 1396, 1763, 3328
Gömec, B., 580
González, J. R., 1381f, j
Good, H. M., 1973
Good, J. M., 2378, 3364
Goode, M. J., 718, 1676, 2316
Gooding, G. V., 779, 3305e
Goodman, R. N., 566, 986c, 989, 3316
Goold, R. A., 3301l, 3650
Goossen, P. G., 1941
Gopalkrishnan, K. S., 2386
Goral, V. M., 737a
Gordeĭchuk, A. I., 1645, 2113
Gordon, D. T., 2310
Goring, C. A. I., 986m
Gorlenko, M. V., 53, 403, 981, 1815, 2999
Gorlenko, S. V., 1148, 2366
Gorodilova, L. M., 120
Gorska-Poczopko, J., 16, 19
Goryuk, M. D., 2474
Goto, K., 1117
Goto, T., 1287
Gottl, R., 320
Gotuzzo, E. A. de, 1556
Goujon, M., 2840
Gould, C. J., 844, 3034
Gourley, C. O., 2532, 3268
Govindarajan, T. S., 1889
Govindaswamy, C. V., 1867
Govindu, H. C., 1113o, q, 1534
Goyal, J. P., 3143
Grabe, D. F., 2922
Gracia, O., 3576
Graessle, E., 2887
Graham, D. C., 877
Graham, J. H., 2590e
Graham, T. A., 2051
Grainger, J., 1746, 2965
Granados R., G., 1538
Granados, R. R., 2428, 3432
Grancini, P., 2515
Grandjean, P., 3334
Granin, E. F., 1677
Graniti, A., 2343, 3666g
Grasso, S., 2715, 2716
Grasso, S. D., 3420
Grasso, V., 117, 3420
Gravatt, G. F., 92, 3401
Gray, E. G., 3546
Gray, G., 2335
Gray, G. G., 2142
Gray, L. E., 3347
Gray, T. R. G., 2370, 3024
Greber, R. S., 270
Grechushkina, N. N., 3345
Green, G. J., 108, 986b, 1510, 2662, 3075
Green, R. J., 1432, 3023
Greene, G. L., 1415, 1416, 1628
Greene, H. C., 87
Greenleaf, W. H., 638
Greenwood, J. M. F., 2822
Greer, F. C., 523, 1553
Gregory, P. H., 733, 2584e
Gremmen, J., 2874, 2875
Grewal, J. S., 2432
Grewe, F., 2380
Grey, E. G., 1376b
Gricius, A. I., 2416
Griffin, B. R., 768
Griffin, D. M., 124, 1413, 2966, 3085, 3086
Griffin, G. D., 2777
Griffin, G. W., 1375t
Griffin, H. D., 2621
Griffin, M. J., 3525
Griffith, R. L., 2584j
Griffiths, D. A., 1016, 1441
Griggs, W. H., 1191
Grimaldi, J., 283
Grinenko, A. F., 3490
Grinvald, C., 1501
Grisenko, G. V., 1527
Groenewegen, C. A. M., 1155, 3132
Groenewegen, L. J. M., 112
Grogan, C. O., 3435
Grogan, R. G., 96, 571, 710, 3207
Grosclaude, C., 258, 1923, 2213
Gross, H. L., 675, 856
Grossmann, F., 1296, 3666l
Grouet, D., 1907, 3134
Grove, J. F., 1007
Grover, R. K., 426, 637, 2953, 3003, 3218, 3454
Grubman, Yu. A., 562
Grumbach, H., 248
Grümmer, G., 1239
Gubanov, G. Ya., 1010, 2173
Gubanova, N. G., 1010
Gudauskas, R. T., 3276
Gugnani, H. C., 1959
Guinn, G., 3453
Gulidova, L. A., 1853
Gunasingham, V., 828
Gunina, A. M., 3637
Gunner, H. B., 1582
Gupta, G. K., 3060a
Guseva, N. N., 34, 1136
Gustafsson, N., 1235
Gustin, R. D., 150, 3432
Guthrie, E. J., 2358c
Guthrie, J. W., 2916
Gutter, Y., 3045, 3443
Guyot, A. L., 46b, c, d, h
Guyot, L., 96a, b
Gvaramadze, K. D., 2856
György, B., 1216
György, K., 1744a

Haasis, F. A., 834
Habish, H. A., 1145, 1897
Hadwiger, L. A., 758, 3666t
Hafiz, S., 3686
Hagedorn, D. J., 1347, 1427, 2002, 2331, 2908, 3626
Haglund, W. A., 1718
Hague, N. G. M., 897
Hahn, J. S., 301
Hahn, W., 1239
Haine, E., 395d
Hakkaart, F. A., 1153, 1157, 3459a
Halbwachs, G., 1072
Hale, M. E., 406
Halisky, P. M., 2516, 2696, 3141, 3478
Halkilahti, A.-M., 1173
Hall, C. B., 899, 1678
Halpin, J. E., 1439
Haltebourg, M., 2929
Hama, T., 2300
Hamamoto, S. T., 770
Hamdorf, G., 246, 395j
Hamer, P. S., 1375m
Hamilton, G. A., 1655
Hamilton, P. B., 665
Hampson, R. J., 3616
Hampton, R. E., 2112
Hampton, R. O., 3482
Hanchey, P., 1855
Hancock, J. G., 1367, 2008, 2583
Hande, Y. K., 1729
Handoll, C., 1592
Hanna, A. D., 2554
Hansen, E., 1612
Hansen, H. P., 977, 2101
Hansen, L. R., 1653
Hansen, T., 1761
Hanson, E. W., 2096, 2187, 3482
Hara, J., 1886
Harada, Y., 3150, 3151
Harding, P. R., 197, 2483, 2720, 3442
Hardison, J. R., 2509
Härdtl, H., 2756
Harjung, M. K., 523
Harkness, S. H., 434
Harley, J. L., 2049
Harman, G. E., 437
Harmey, M. A., 1951
Harmon, S. A., 1686, 3584
Harmsen, L., 932
Harpaz, I., 2472
Harper, F. R., 3265
Harper, P. C., 877, 3191
Harries, H. C., 3570
Harris, J. H., 2650
Harrison, A. N., 3276
Harrison, B. D., 461, 1060, 2421, 3052, 3301g, h, k, m, n
Harrison, E. M., 3258
Harrison, J. A. C., 2245, 2246
Hart, J., 123
Hart, R. W., 2659
Hartill, W. F. T., 885, 891
Hartley, C. W. S., 1639
Hartz, P., 2357h
Harvey, A. E., 1320
Harvey, R., 6
Harwood, R. R., 2944
Hasan, S. A., 1418, 2982
Hashioka, Y., 447, 729, 1866
Hashmi, M. H., 3026
Hasija, S. K., 2718
Hassan, A. A., 1972
Hassan, S. F., 2668, 3079, 3080
Hassebrauk, K., 110, 1081
Hatmanu, M., 1377c
Haverkate, F., 1374j

Haware, M. P., 1545
Hawken, R. H., 938
Hawkins, A., 613
Hawksworth, F. G., 358
Hayashi, J., 1848
Hayes, A. J., 3219b, c
Hayes, W. A., 390h
Hayward, A. C., 280
Heald, C. M., 225
Heale, J. B., 3374, 3743
Healy, M. J., 2185
Heathcote, G. D., 943, 3624
Heather, W. A., 328, 1308
Heaton, J. B., 2844
Hebert, T. T., 779, 1350
Hecker, R. J., 687, 3258
Hefner, J. J., 528
Hegedus, A., 3522
Heggestad, H. E., 3700c
Hegyi, Gy., 3495
Hehn, E. R., 116, 1089
Heidler, G., 2357b
Heimann, M., 1347n
Hein, A., 395c
Heinze, K., 394f, 395g, 1360
Heitefuss, R., 3666b
Hellinger, E., 198
Helms, K., 79
Helton, A. W., 256, 574, 575, 1199, 3158, 3498
Hendrix, F. F., 762, 1029, 1792, 3225
Hendrix, J. W., 790, 1087, 1776, 3413
Hendry, A. T., 409
Hendy, A. F., 859
Henegariu, O., 1903
Henis, Y., 2071, 3363, 3726, 3727
Henner, J., 587
Hennessy, C. M. R., 978k, l
Henningsson, B., 935
Henson, L., 1419
Hepting, G. H., 3700d
Hepton, A., 1631
Herbas, R., 2181
Herfs, W., 2357a
Hering, M., 272
Hermansen, J. E., 138, 773, 2684, 2685
Hernández Paz, M., 1134, 1562
Herold, F., 2479
Herrera Autter, S., 3594
Hervert, V., 288
Hess, W. M., 2632
Hetzer, T., 1743r
Heuberger, J. W., 3491
Hewetson, F. N., 2768
Hewett, P. D., 1734
Hewitt, W. B,. 9b, 581
Hibben, C. R., 2590i
Hickman, A. J., 1704
Hickman, C. J., 769, 957, 2084, 2085
Hicks, P. G., 2028, 2121
Hidaka, Z., 75
Hide, G. A., 2584j
Hiebert, E., 3277, 3278
Higuchi, Y., 2605
Hildebrand, D. C., 862, 2373, 2536, 3322
Hildebrand, E. M., 2819
Hildebrandt, A. C., 886, 1270, 1581, 3472
Hill, A. V., 1380a, d
Hill, J. P., 1124
Hille, M., 1651
Hills, F. J., 2312
Hills, G. J., 3614
Himelick, E. B., 911
Hinds, T. E., 1687, 2297
Hinfner, K., 1108
Hino, T., 1662
Hirai, T., 2108, 2706
Hirano, K., 3216
Hirao, C., 1848
Hiratsuka, N., 2439
Hiratsuka, Y., 448, 3597, 3598
Hirons, M. J. D., 3313
Hirst, J. M., 5, 1375x, 2584a, h
Hirth, L., 685
Hiruki, C., 1061
Hirumi, H., 2428
Hirvonen-Semb, A., 1603
Hislop, E. C., 419, 3692
Hitchborn, J. H., 3049, 3614
Hitier, H., 624
Ho, H. H., 769, 957, 2084, 2085
Hoarau, M., 979, 3551
Hockenhull, D. J. D., 423
Hocking, D., 201, 820, 920, 1374h, 1558, 1559, 1890, 1983, 2170, 2863, 3591
Hodgson, W. A., 2401, 3699
Hoefert, L. L., 865
Hoffman, G. M., 1317, 1790
Hoffman, J. A., 3082
Hoffman, J. C., 2914
Hogg, W. H., 5
Höglund, S., 2425
Hohl, H. R., 770
Hoitink, H. A J., 2331, 3461
Holcomb, G. E., 236, 3467
Holliday, P., 2351
Hollings, M., 390i, j, m, n, o, p
Hollis, J. P., 184
Hollomon, D. W., 788
Holmes, F. O., 1452
Holmes, F. W., 907
Holmsquist, O., 1381f
Holt, R. W., 3648
Holton, C. S., 502, 503, 2663
Holtzmann, O. V., 444, 2783
Homès, J., 1304
Hondelmann, W., 1211
Hones, D. A. G., 3571
Honma, S., 630, 2835
Hooker, A. L., 986p, 1518, 2699, 2703
Hooker, W. J., 459, 597a, d, 2806, 2815
Hool, G., 2045
Hopf, H. S., 1864
Hoppe, W., 1644
Hori, M., 1070
Horino, O., 447, 1866, 1870, 1871
Horn, N. L., 2533
Hornby, D., 161, 2584o
Horne, F. R., 3418
Horner, C. E., 401f
Horsfall, J. G., 986, 2598
Horst, R. K., 3461
Horváth, J., 1230, 1744d, 1753, 2235, 2547, 2807, 3536, 3537
Hosford, R. M., 1448
Hough, L. F., 2525
Houghton, E. R., 392b
Höweler, L. H., 1442
Howell, C. R., 2340
Howland, A. K., 505, 1379a, 1515
Hruschika, H. H., 1255
Hsi, D. C., 2695
Hsieh, S.-C., 2707
Huang, T.-C., 2713
Hubbeling, N., 1g
Hubbes, M., 978o
Huber, D. M., 3409
Huber, J., 2080
Hubert, J. J., 574
Huby, M.-T., 757
Hudson, H. J., 1006
Huerta, H. V., 1381f, j
Hughes, C. G., 882
Hughes, W. H., 1248
Huisingh, D., 510
Hulea, A., 397i, 1236, 1377c
Hull, R., 692, 943, 1707, 2584q, 3640
Hulpoi, A., 397d, 1377g, 1912
Hunnius, W., 603, 874, 1949
Hunt, D. G., 1363
Hunt, P., 2037
Hunter, D. E., 1953
Hunter, J. H., 3742
Hunter, R. E., 1576, 3124, 3453
Hurndell, L. C., 2659
Hurst, G. W., 5
Husain, S. S., 1418, 2893, 2982, 2983
Hussain, M., 2668, 3080
Hutchinson, P. B., 1262
Hutchison, J. A., 2690
Hwang, S.-W., 2365
Hyde, G. A., 1375y
Hyde, J. M., 339
Hyodo, H., 3547
Hyre, R. A., 3274

Ibragimov, G. R., 1595, 2833
Idessis, V. F., 478
Igmándy, Z., 904, 3736
Ignatavičiūte, M., 1036
Ignătescu, I., 397d, 1236, 1377g
Ignatoski, J. A., 2336
Iida, T., 170
Iida, T. T., 3384
Iida, W., 1709
Iizuka, H., 1793
Ikegami, H., 1866, 3272
Ikenberry, R. W., 157
Ilag, L., 2607
Iliescu, E., 397k
Iliev, I., 260
Il'ina, M. N., 1336
Inaba, T., 1822
Inbar, M., 3363
Indira, P., 3529
Ingold, C. T., 2967
Ingram, D. S., 606
Ingram, R., 3041

Injac, M., 2976
Inoue, Y., 713
Inouye, N., 1712, 1736
Inouye, T., 1712, 1736
Inui, T., 1793
Iosifescu, M., 965, 1377i
Iotov, L., 2456
Iren, S., 1796
Isaac, I., 986d, 1009, 2245, 2246
Isaac, P. K., 787
Ishaque, M., 517, 809
Ishchenko, L. A., 2999
Ishida, N., 2931, 2946, 3657
Ishiie, T., 656
Ishikura, H., 1070
Ishizaka, N., 609, 1240
Israel, H. W., 1271
Itô, K., 1327
Iton, E. F., 1470a
Ivanchenko, M. Ya., 2231
Ivanova, S. N., 1841
Ivanyuk, V. G., 3544
Ivory, M. H., 344, 1322, 1984
Iwaki, M., 540, 1803, 2263
Iwakiri, B. T., 1191
Iwata, Y., 2346, 2439
Iyer, R., 1113f
Izard, C., 1669, 1670
Izquierdo Tamayo, A., 313
Izubenko, V. V., 1677

Jabbar, A., 2924
Jabbar Miah, M. A., 1445
Jack, R. C. M., 434
Jackson, C. R., 376, 1731, 2018, 2019, 2928, 3548, 3643
Jackson, D. I., 1608, 2207
Jackson, L. L., 1898
Jacobs, L., 1375c
Jacques-Félix, M., 54
Jacquinet, A., 3521
Jacquiot, C., 903
Jadhav, J. S., 2812
Jadot, R., 1277, 2586e
Jaffer, A. A., 1559, 2863, 3595
Jahn, E., 1991
Jain, A. C., 1531, 2230, 2682
Jain, S. S., 1113s, 1872
Jalaluddin, M., 350
Jamalainen, E. A., 481, 1475, 2661
James, G. L., 897, 2842
James, W. C., 1375i
Jamoussi, B., 1550
Janas, J., 2576
Jančařík, V., 2284, 2865
Janežič, F., 1650
Jankowski, F., 308, 309
Jankułowa, M., 2649
Jannone, G., 2226
Janýška, A., 971
Jarvis, W. R., 3301a
Jaspars, E. M. J., 1913, 3142
Jaworski, C. A., 2378, 2845
Jean, J.-H., 3102
Jeevaratnam, A. J., 616
Jeff, E. A., 3127
Jemmet, J. L., 1375h
Jenifer, F. G., 3615
Jenkins, A. E., 2524
Jenkins, J. E. E., 1375h
Jenkins, P. T., 3163
Jensen, A., 1342, 2341
Jensen, D. D., 1191
Jensen, K. F., 1993
Jensen, S. G., 1847, 2462
Jermoljev, E., 289, 1227, 2557, 3561
Jesús Arias, F., 3092
Jeun, J., 1721
Jewell, F. F., 1987
Jewell, T. R., 2590j
Jha, A., 3295
Jhooty, J. S., 1364
Jilani, M. B., 2996
Jindal, J. K., 813, 1547
Jinks, J. L., 2628
Joffe, A. Z., 1466, 1555, 3645
Johanns, J. C., 3595
John, K. P., 1257
Johnson, A. L. S., 1325
Johnson, F., 3034
Johnson, G. T., 3010
Johnson, L. B., 2673, 3527
Johnson, R., 1488, 1834
Johnson, T., 986b
Johnston, C. O., 2671
Johnstone, G. R., 3145
Joly, P., 49
Jonard, G., 685
Jones, A., 3548
Jones, A. T., 3665b
Jones, B., 2172
Jones, B. L., 3240, 3305c
Jones, B. M., 3492
Jones, D., 1041, 1782, 2397, 2410, 3739
Jones, J. E., 1566
Jones, J. P., 133, 319, 2265
Jones, K. L., 1023
Jones, O. P., 3162
Jones, R. A. C., 3301k
Jooste, W. J., 802
Jordan, V. W. L., 2774
Jordović, M., 1616
Jorgensen, E. C., 2777
Jørgensen, J., 940
Jørstad, I., 1174, 2081
Jose, P. C., 548
Joshi, H. M., 1109
Joshi, H. U., 1172
Joshi, L. K., 1265
Joshi, L. M., 163, 378, 1082, 1452, 2153, 2154, 2686
Joshi, M. M., 2705
Joshi, N. C., 3468
Joshi, V. B., 2386
Jovićević, B., 1614, 2762
Juan, O., 3189
Julien, J. B., 3160
Junell, L., 449
Juo, P.-S., 1646
Jurášek, L., 1335, 3607

Käärik, A., 646
Kaars Sijpestijn, A., 231, 2984, 3666o
Kado, C. I., 1272, 2738
Kadȳmov, O. M., 2729
Kadzielawa, S. D., 1973
Kagan, F., 3406
Kahan, R. S., 2717
Kahn, R., 2357f
Kahn, R. P., 66, 2647
Kailides, D. S., 2274
Kaiser, J. W., 3262
Kajiwara, T., 2346
Kajiyama, M. R., 2644
Kakkar, R. F., 1015
Kalinichenko, A. N., 3509
Kaloostian, G. H., 2755
Kalyanasundaram, R., 1421, 1769j, 2391
Kamal, 2704
Kamal, M., 761, 3734
Kamat, M. N., 1751
Kamei, T., 447, 1866, 2572
Kameswar Rao, K. V. S. R., 1113, r, z
Kamoen, O., 1374 1
Kananen, D. L., 3215
Kanazawa, Y., 2111
Kanevcheva, I. S., 3411
Kanwar, J. S., 185
Kapás, S., 1108
Kapeller, K., 1743t, 1744e
Kaper, J. M., 3615
Kapil, R. N., 3304
Kapoor, J. N., 1035b
Kapoor, S. P., 3287
Kapooria, R. G., 1113, m, n, 1532, 1769e
Kappel, W., 1112
Kar, A. K., 181
Karahan, O., 3281
Karan, D., 3642
Karatȳgin, I. V., 2151, 2473
Karis, H., 831
Kashima, C., 1772
Kashkarova, R. S., 3242
Kaspers, H., 2748
Kassanis, B., 465, 2424, 2584b
Kasumov, N. M., 2729
Kaszonyi, S., 1743g
Katar'yan, B. T., 3523
Kathavate, Y. V., 3444
Katiyar, R. L., 1490
Kató, F., 2882
Katsanos, R. A., 806, 1535
Katsui, N., 2239
Katsuki, S., 2620
Katsuya, K., 108
Kaufman, J., 380
Kaul, T. N., 2759
Kaune, P., 934, 1989
Kavanagh, J. A., 1129
Kavanagh, T., 2771
Kawamura, T., 3216
Kawanishi, C. Y., 1107
Kazachenko, R. F., 369
Kazhieva, N. T., 2415
Keay, M. A., 2587
Kebadze, N. A., 2767
Kechakmadze, L. A., 2501
Kechek, N. A., 1666
Keeling, B. L., 1505
Keen, N. T., 1369, 3618
Kegler, H., 255, 1194
Keil, H. L., 252, 2751
Keldȳsh, M. A., 262
Keller, E. R., 1652
Keller, T., 993
Kellock, A. W., 3144
Kelman, A., 10
Kelts, L. J., 2224, 3517
Kem, I. I., 129
Kemp, W. G., 2179

Kempton, R. J., 390r
Kendrick, E. L., 3082
Kendrick, J. B., 3004
Kendrick, W. B., 3043
Kenknight, G. E., 2278
Kennedy, L. L., 764
Kennel, W., 1186
Kenneth, R. G., 2780
Kenten, R. H., 480, 1075, 3070a
Kepler, J. A., 665
Keplinger, J. A., 2775
Kernkamp, M. F., 3417
Kerr, A., 1269
Kerr, E. A., 391g
Kessler, K. J., 1305
Ketring, D. L., 3361
Keyworth, W. G., 3299
Khachatryan, M. S., 1182
Khadka, B. B., 2115
Khaïdarov, D., 1137
Khair, J., 2470
Khaleeva, Z. N., 1249
Khalifa, M. A. S., 2041
Khalimov, M. Kh., 315
Khan, A. A., 1244, 3190
Khan, M. A., 3186
Khan, S. A., 3734
Khan, S. N., 677
Khandobina, L. M., 2936
Khanna, A., 3738
Khanna, B. M., 789
Khanna, R. N., 1109, 1266
Khanna, S. G. S., 744
Kharchenko, S. N., 2475
Khasanov, O. Kh., 219
Khashimova, A., 211
Khatri, H. L., 228
Khew, K. L., 978h
Khidureli, G. S., 2786
Khmelev, P. P., 3327
Khodzhibaeva, S. M., 1141
Khokhryakov, M. K., 403
Kholodnyuk, M. S., 2134
Khramtsov, N. N., 901
Khristov, A., 1632, 2594
Khristova, E., 1341
Kieckhefer, R. W., 782
Kiehl, E. J., 1565
Kiel, W., 1253, 1956
Kiely, T. B., 1127
Kientzler, L., 25
Kiewnick, L., 2691
Kihara, H., 2624
Kilby, A. A. T., 719
Kilpatrick, H. C., 254
Kilpatrick, R. A., 234, 238, 553, 555, 785, 2442
Kimati, H., 953, 954
Kimble, K. A., 571
Kimigafukuro, T., 1709
Kimmey, J. W., 401i
Kimmins, W. C., 1053
King, J. E., 2810, 2932, 3648
King, S. B., 1293
Király, Z., 989, 1743p, z, 3720
Kirchner, H.-A., 1181
Kireeva, G. S., 2487
Kirkpatrick, H. C., 254, 2765
Kirmani, M. A. S., 2668, 3080
Kirsanova, R. V., 3684
Kiselevskiĭ, A. I., 2369
Kishi, K, 2212
Kislev, N., 2472
Kiso, A., 2706
Kiss, E., 1743r
Kitajima, E. W., 724, 725
Kitani, K., 2706
Kitipov, A., 1673
Kjøller, A., 37
Klarman, W. L., 2335, 3666u
Kleczkowski, A., 462, 2584a, 3050
Klein, M., 2472
Klein, R. M., 1030
Klein K., C., 2312
Klement, Z., 986c, 1286, 1743t, 1744c
Klesser, P. J., 706, 1727, 1909, 2925, 3283
Klewitz, R., 2443
Klimmer, O. R., 2042
Klimov, A. N., 1403
Kline, D. M., 3480
Klingstrom, A., 3231
Klink, J. W., 2076
Klinkowski, M., 2637
Klír, O., 366, 686, 1999, 2508, 3533
Klisiewicz, J. M., 3527
Klopping, H. L., 3687
Kluge, E., 2850
Klyuchareva, Z. K., 3146, 3147
Klyushnikova, E. S., 981
Knaphus, G., 1785
Knauss, J. E., 2506
Knauss J., F., 842
Knight, C. A., 2738
Knoche, H. W., 1084
Knorr, L. C., 1557
Knösel, D., 996, 2372
Knowles, R. P., 1169
Knuhtsen, H. K., 2348
Ko, W.-H., 1433
Kobayashi, T., 1313, 1327, 2283
Koch, F., 394d, 948, 949
Koch, H., 415
Kochan, W. J., 256, 1199, 3498
Kocherezhkin, V. G., 1568
Kochman, J., 1749, 1975
Koenig, M. J. P., 2251
Koenig, R., 2643
Koenigs, J. W., 1323, 3599
Kogan, I. G., 292
Köhler, E., 395a
Kohli, C. K., 3108
Koike, H., 3554
Kolesnik, Z. I., 2781
Kolk, H., 1077
Kolosov, L. I., 1495
Komatsu, M., 729
Komersová, I., 3000
Komochi, S., 1287
Komuro, Y., 1803, 2263
Kondo, W. T., 3380
Kondo, Y., 2160
Konev, Yu. E., 1140
Konikov, A. S., 1314
Kononenko, A. P., 460
Konopko, E., 500, 792
Konsler, T. R., 1972
Koprowski, H., 2419
Korol'ova, I. B., 846
Koshkarova, G. M., 2175
Kosljarová, V., 3396
Kostanyan, A. V., 387
Kostić, B., 1506, 2664
Kosuge, T., 1656
Kotasthanae, W. V., 326
Kothandaraman, R., 3284
Kothari, K. L., 281
Koths, J., S., 1582
Kotko, I. K., 3423
Kotova, V. V., 1719
Koula, V., 1237
Kousalya, G., 1728
Kovachevski, I. C., 1044, 1460, 2026
Kovács, G., 742
Kovács, L. C., 1743u
Kovalenko, V. F., 2521
Kovaleva, É. S., 1208, 3506
Koveshnikov, A. D., 210
Kozera, W., 796, 1851
Kozlova, L. N., 1011
Kozlovskaya, I. N., 2238
Kozlowski, T. T., 993
Kradel, J., 1374i, 1375j
Kraft, J. M., 1351
Králík, O., 1804, 3057
Kramer, C. L., 2203, 2968, 2969
Kranz, J., 1750, 2035, 2362
Krasnokutskaya, O. N., 2404
Krass, C. J., 2145
Kratenko, V. P., 3448
Krátká, J., 1915
Krčan, K., 1787
Krczal, H., 264, 395h
Krebill, R. G., 1986, 2860
Kreitlow, K. W., 238
Kremer, F. W., 2654, 2753
Krexner, R., 1965
Krieger, L. C. C., 3310
Krijthe, J. M., 1
Krikun, J., 3286
Krishnamurthy, C. S., 218, 421, 1728
Krishnamurthy, G. S., 534
Kristensen, H. R., 62, 63
Kristev, K., 1200
Kristeva, M., 1200
Kristinsson, H., 1440
Krivchenko, V. I., 1383
Kröber, H., 628
Krokhina, V.-N., 3381
Krousheva, R., 1337
Krstic, M. M., 21
Krüger, H., 416
Krüger, W., 802
Krugman, S. L., 355
Kruseman, J., 3142
Krylova, T. P., 1763
Krÿskov, E. I., 3526
Książek, D., 1799, 3484
Kublitskaya, M. A., 2227, 2792
Kubo, S., 76
Kuć, J., 875, 3193
Kuchma, M. F., 2475
Kućmierz, J., 2618
Kudo, K., 1709
Kuhn, C. W., 2144, 2926
Kühne, H., 227
Kühnel, W., 3292
Kuiper, J., 2445
Kujumgiev, L., 1755

Kulik, M. M., 2055
Kulikova, G. N., 109, 1487, 3416
Kulkarni, H. Y., 1379b, 2785
Kulkarni, L. G., 1730
Kulkarni, N. B., 2232, 2604, 2656, 2801
Kulkarni, S. N., 1548, 2230
Kulkarni, V. K., 1863
Külps, G., 3390
Kumar, D., 1767, 2992
Kumar, M., 426, 3003
Kummert, J., 1049
Kundert, J., 2539
Kunkel, J. F., 2578
Kunoh, H., 1099, 3429
Kunze, L., 246, 395k, l, 2357i
Kuo, T. T., 2709, 2713, 3104
Kuprevich, V. F., 403, 2694
Kuptsova, V. P., 175
Kurbanov, M., 3119
Kurian, N. J., 531
Kuriyama, T., 2264
Kurkdjian, A., 1391
Kurozawa, C., 895
Kushman, L. J., 2819
Kushpeleva, M. I., 588, 3520
Küster, E., 1780
Kuvshinova, E. V., 3526
Kuziev, S., 639
Kuznetsov, V. D., 1025
Kuznetsova, M. N., 1519
Kuznetsova, S. E., 3415
Kuznetsova, T. A., 2936
Kuznetsova, T. F., 2484
Kuznetsova, V. I., 2093
Kvíčala, B. A., 1715, 3393, 3628, 3629
Kwakwa, R. S., 1472
Kybal, J., 3000
Kyrou, N. C., 876

La Barbera, R. R., 2377
Laborda Rodriguez, E., 1745t
Lacasse, N. L., 3224
Lacey, J., 2584i
Lachance, R.-A., 4b, 2375
Lacoste, L., 90
Lacy, M. L., 3649
Ladyzhenskaya, N. V., 1853
Lafon, R., 18
Lai, M.-T., 2008, 2332
Lai, P., 401a, 2459, 2460, 3027
Lai, P.-Y., 3425, 3634
Lakhoua, H., 1924
Lal, A., 619
Lal, R., 2951
Lal, S., 617
Lal, S. P., 2014
Lamb, C. A., 13
Lamey, H. A., 1115, 1546, 2155, 3439
Lamontagne, Y., 341
Landers, K. E., 708
Landfald, R., 1603
Lane, C., 1020
Lanestskiĭ, V. P., 1136
Langdon, K. R., 3321
Lange-de la Camp, M., 783, 1507
Langenberg, W. G., 3560
Langvad, F., 1417
Lanier, L., 345, 978o, 2864p
Lapis, D. B., 388
Lapwood, D. H., 2584k, 2811
Larina, E., 1166
Larsen, M. J., 667
Last, F. T., 390a, 719, 1372, 3571
Latch, G. C. M., 2187
Laterrot, H., 1745g
Latham, A. J., 2616, 2634
Latter, F. S., 3443
Laugie, M., 2947
Lauska, A. Ya., 2292
Lavallée, A., 2847
Lavallée, E., 385
Laville, E., 285
Laviola, C., 3742
Law, C. N., 1488
Lawrence, C. H., 2401
Lawson, R. H., 72, 73, 838, 2735, 3136
Laxminarayan, C., 1113, e
Layne, R. E. C., 321, 2268, 2525, 2561, 3494
Lazar, A. C., 570
Lazăr, I., 408, 2974
Leach, C. M., 1017, 2054, 3723
Leach, R., 1726
Leach, S. S., 597e
Leakey, C. L. A., 3059c
Leal, J. A., 1777, 2400, 2608
Leaphart, C. D., 1690
Leath, K. T., 1517
Leather, R. I., 1066
Lebeau, J. B., 1593
Leben, C., 12, 2024, 2371, 3636
Lebeurier, G., 2584b
Lebrun, A., 368
Lechevalier, H. A., 9a
Lechevalier, M. P., 9a
Leclant, F., 1745i
Ledingham, R. J., 127
Lee, B. W., 1124
Lee, C.-S., 3555
Lee, P. E., 3073
Lee, Y.-S., 3104
Leeuwangh, J., 2155
Legg, J. T., 480, 1074, 1075, 3070a, b
Leggo, D., 1127
Leh, H.-O., 2023, 3291
Lehmann, C. O., 1486
Lehoczky, J., 1215, 1216, 2791, 2794, 3519
Lekomtseva, S. N., 981
Lele, V. C., 807, 2719
Lelley, I., 514, 794, 1743o, 1846
Lelliott, R. A., 1604
Lemaire, J. M., 144
Lemattre, M., 3129
Lemeni, V., 965
Lennard, J. H., 1375z
Lentz, M. E., 3732
Lentz, P. L., 3732
Leona, I. A., 780
Leon-Gallegos, H. M., 2476
Leont'eva, Yu. A., 487
Lepidi, A. A., 3331
Leppik, E. E., 2940, 3068
Lerch, B., 394d
Lert, P. J., 2734
Lešková, O., 2514
Lester, E., 125, 1375d
Levchenko, E. M., 3542
Levi, M. P., 1992, 2888
Levitin, M. M., 2364
Lëvkina, L. M., 2838, 2998
Levteeva, N. S., 1927
Levy, J. F., 645, 931
Lewellen, R. T., 1089, 1832
Lewin, H. D., 534
Lewis, F. H., 2768
Lewis, G. D., 1967
Lewis, H. L., 3010
Lewis, J. A., 1775, 2408, 2615, 3669g
Lhoste, J., 1745s
Li, H. W., 3104
Liang, H.-L., 2707
Libby, W. J., 1321
Liese, W., 933
Lietava, M., 20
Lihnell, D., 62, 63
Lilly, V. G., 1777, 2400, 2608
Lim, G., 810
Lim, H. W., 477
Lim, S. M., 2703
Lim, W. C., 1016
Limasset, P., 1745d, n
Limberk, J., 3539
Limonard, T., 2094
Lin, F.-K., 3006
Lin, M.-H., 2707
Lin, S.-C., 3555
Lin, S.-Y., 1355
Lindberg, G. D., 1541, 1546, 2057
Linderman, R. G., 1429
Lindner, R. C., 254, 2765
Lindquist, J. C., 46e, 1910, 1981
Lindsey, D. L., 89, 898
Ling, K. C., 169
Linn, M. B., 2616, 2985
Linskens, H. F., 3666a
Linzon, S. N., 926
Lippincott, B. B., 410, 3320
Lippincott, J. A., 410, 3320
Lisina-Kulik, E. S., 2068
Lisovyĭ, M. P., 1281
Lister, R. M., 1456
Lisyutina, N. I., 2243
Littlefield, L. J., 427
Littrell, R. H., 225, 2434
Litvinov, M. A., 3037
Litvinova, V. N., 1403
Litz, R. E., 1053
Liu, K. C., 1126, 1130, 1226
Liu, L.-J., 1264
Ljungberg, G., 1077
Llanos, M. C., 2222
Lloyd, A. B., 1425
Lo, T.-C., 3102
Locci, R., 875
Locke, S. B., 2933
Lockhart, C. L., 858, 1187
Lockwood, J. L., 722, 952, 3025
Loebenstein, G., 2422
Loegering, W. Q., 986r, 2667, 3413
Logan, C., 3190
Lohwag, K., 2496

Lombard, F. F., 2297
Lombard, M., 1354
Long, M., 2172
Lopatin, M. I., 3096
López-Duque, S., 1135
Lopez, M. E., 756
Lorbeer, J. W., 380, 2590k, 2934, 3288
Lord, W. J., 1607
Lorenz, I., 346
Lorenz, P. R., 3387
Lortie, M., 2847
Lott, T. B., 851
Loughnane, J. B., 1784
Louvet, J., 284
Lovi, N. K., 3070a
Lovie, R., 3288
Lovrekovich, H., 1966, 3566
Lovrekovich, L., 1966, 3566
Low, C. M., 3239
Lownsbery, B. F., 571
Lozano, T. J. C., 1542, 1543, 1671, 1955, 2157, 2535
Lu, J., 3481
Lu, Y.-Y., 3071
Lucas, G. B., 3211
Lucas, M. T., 2078
Luciano, A., 1222
Lučić, S., 1294
Lüders, W., 312, 625
Luepschen, N. S., 3497
Luig, N. H., 489, 1481, 1483
Luisetti, J., 2683
Luke, H. H., 1855, 1857
Lukens, R. J., 235, 2598, 3479
Lukezic, F. L., 1617, 3496
Lukić, A., 3565
Luk'yanenko, P. P., 3414
Lulov, K., 626, 1278, 1660
Lumsden, R. D., 2005
Lund, S., 2516
Lundeberg, G., 2991
Lunderstädt, J., 105
Luppi, A. M., 424, 3710
Lupton, F. G. H., 2431
Luttrell, E. S., 553, 1018, 1512
Lyakh, S. P., 3351
Ly-Thi-Ba, M., 3538
Lyskanowska, K., 1919

Maag, G. W., 3258
Maas Geesteranus, H. P., 1d
Maassen, H., 264
Maat, D. Z., 1374u, 1654
Macbain Cameron, J. W., 737c
Maciejowska, Z., 2306, 3620
Macindoe, S. L., 3412
Mack, J. H., 434
Mackeen, C. D., 978p
Mackenzie, D. R., 1513, 3093
MacKinnon, J. P., 597b, 601, 1225
Macmillan, J., 984
Macneill, B. H., 978e
Macnish, G. C., 2550, 3398
Macomb, M. L., 150
Macrae, R., 50
Macswan, I. C., 3504
Macwithey, H. S., 440, 839
Madelin, M. F., 2595, 2970, 3685
Madhosingh, C., 436, 2320
Maduewesi, J. N. C., 2002
Magee, C. J., 266
Magnani, G,. 343
Mahadevan, A., 1113t, 2177, 2727, 3451, 3666k
Mahadevan, A. N., 407
Mahapatra, M., 2918
Mahdi, M. T., 128
Maheshwari, P., 3304
Maheshwari, R., 1581, 3674
Maïa, É., 1051
Maier, C. R., 38, 2909, 2910
Maison, P., 1745j
Majer, J., 3000
Major, R. T., 1316
Majorana, G., 189, 2104, 2165, 2352
Maklakova, G. F., 2238
Makris, S., 3666q
Makrushina, A. T., 1633
Malaguti, G., 1381b, c, h
Malca, I., 2172
Malcolmson, J. F., 610, 1376b, 3546
Malençon, G., 46d
Malenin, I., 2797
Malichenko, B. F., 3542
Malichenko, N. A., 3542
Malik, M. M. S., 2675, 2996
Malik, S. A., 3186
Malinin, V. M., 1893
Mallace, N., 246
Mallett, S. L., 1987
Mallik, M. A. B., 3026
Mallozzi, P., 290, 2181
Malone, J. P., 1858
Maloy, O. C., 2299, 2858, 3245
Malÿsheva, K. M., 207
Mamadaliev, A. Kh., 213
Mamedov, K. D., 910
Mamula, D., 2308
Manchev, I., 2540
Mandel, M., 2325
Mandel'baum, Ya. A., 1397
Mandryk, M., 1276
Manigault, P., 1391
Mann, N. S., 3199
Manning, W. J., 3669a
Manninger, I., 158, 1743n
Manocha, M. S., 618, 830, 3039
Mănoiu, I., 3261
Manouchehri, 3064
Mantle, P. G., 233, 1104, 2478
Manturovskaya, N. V., 1326
Manzanilla, A. S., 3105
Manzer, F. E., 597h
Mapother, H. R., 2725
Maraite, H., 1368, 1716, 2004
Maramorosch, K., 74, 2419, 2428, 3432
Marani, F., 3463
Marchant, R., 1443, 2046, 2059
Marcks, G. C., 1002
Margittai, L., 1743q
Markarian, D., 722, 2944
Markham, R., 3277
Markhas'ova, V. A., 314
Markov, M., 2456
Marks, G. C., 2390
Marland, A., 608
Marras, F., 814, 815, 816
Marrou, J., 383, 1745e, k, l, m
Marsh, R. W., 3670
Marshall, K. C., 1701
Marte, M., 2912
Martelli, G. P., 2769, 3296, 3397, 3519
Martens, J. W., 2441, 3075
Martens, P. H., 3330
Martin, D., 3145
Martin, J. N. D., 14
Martin, J. T., 1376e
Martin, N. E., 1087
Martinez, A. L., 190, 1876
Martinez, A. P., 1637, 2802, 3321
Martinović, M., 1619, 3470
Martyn, E. B., 2420
Maruyama, P. J., 3597
Marx, D. H., 3225
Marzhina, L. A., 1179, 1598
Mas, M. P., 974
Masamune, T., 2239
Mashtakow, S. M., 1497
Masri, S. S., 59
Massenot, M., 96, 532
Massfeller, D., 394c, 2357c
Massie, L. B., 2590d, 2744
Masuko, M., 1770
Masurat, G., 2029
Mateescu, N., 727
Mathre, D. E., 527, 1892
Mathur, B. L., 279, 866, 867
Mathur, R. L., 279, 364, 866, 867, 2061
Mathur, S. B., 378, 413, 2074, 2153, 2154, 2596
Mathur, S. C., 172, 1113v, 1769i
Matisová, J., 239
Matolcsy, G., 1400, 3690
Matskevich, N. V., 175
Matsubara, S., 2374
Matsui, C., 684, 2572
Matta, A., 2356h, 2949, 3666f
Matthee, F. N., 2796, 3318
Matthews, D., 476, 1095
Matthews, R. E. F., 1057, 1703
Matthews, S., 1720
Matsumoto, I., 1340
Matsuno, M., 521
Matuo, T., 1366, 2580
Maude, R. B., 1375w, 3299f, g, h, i
Maurer, A. R., 3184
Maxfield, J. E., 3266
May, G. E., 1363
May, J., 1180
Mayo, M. A., 1453
Mayor, E., 46g, 1809
Mays, F., 226
Mazur, O. P., 3349
Mazzani, B., 1381b, h
Mazzuchetti, G., 2988
McArthur, L. E., 448
McCain, A. H., 444, 2734, 1067
McCall, S. R., 2650

McCarter, S. M., 2434, 2845, 2913
McCarthy, D., 465, 1459
McColloch, L. P., 950
McConnell, W. B., 1769f
McCoy, E., 2331
McCoy, R. E., 2506
McCreary, C. W. R., 1376d
McCrum, R. C., 597h
McDonald, D., 2587, 3646
McDonald, H. H., 192
McDowell, L. L., 2609
McEwen, F. L., 1107
McFarlane, J. S., 3257
McGee, D. C., 3664f
McGlohon, N. E., 259
McGrath, W. T., 3232
McGrew, J. R., 3516
McGuire, J. M., 1676
McHenry, J., 3583
McIntosh, A. H., 607
McIntosh, R. A., 1481, 1482
McIntosh, T. H., 827
McIntyre, G. A., 79, 597g
McKay, H. C., 3409
McKee, G. W., 541
McKee, R. K., 3192
McKeen, C. D., 2268
McKeen, W. E., 767
McKenzie, A. R., 1444
McKenzie, R. I. H., 1510, 2441
McKnight, T., 123, 511
McLaren, A. D., 462
McLean, D. M., 717, 2914
McMeans, J. L., 1574
McNabb, H. S., 3222
McNabola, S. S., 771, 3618
McNeal, F. H., 2447
McNeilan, R. A., 3504
McVaugh, R., 2617
Meagher, R. B., 1656
Medeiros, A. G., 3005
Mee, H., 2486
Mehiar, F. A., 3457
Mehrotra, R. S., 1943
Mehta, B. K., 167
Mehta, S. C., 1082
Mehta, Y. R., 804
Meier, W., 3264
Meiffren, M., 1076, 1812
Meignoz, R., 3205
Meinert, U. G. H., 1363
Mekhmanov, M., 212, 2488
Mekhtieva, N. A., 441
Meléndez-Howell, L.-M., 446
Meléndez, P. L., 2534
Melian, L., 3178
Mellenthin, W. M., 1612
Mellor, F. C., 401g, 1950, 3535
Mel'nikov, N. N., 1762, 1763
Melouk, H., 401f
Meltzer, J., 3693
Melville, S. C., 938, 2733
Mendham, N. J., 871
Mendicino, J., 995
Meneghini, M., 774
Menezes, T. J. B. de, 743, 1338
Menon-Nayar, R., 1979
Menyonga, J. M., 1431
Meossi, E., 2782, 2826
Meredith, D. S., 2783
Meronuck, R. A., 3084
Merrett, M. J., 1273
Merrill, W., 909, 2888
Merriman, P. R., 2773
Mertsalova, O. S., 558
Meshcheryakova, R. I., 488, 2455
Mesner, W., 1379d
Messiaen, C. M., 383, 1745i, j, m
Messieha, M., 147
Metcalfe, D. R., 1852
Metlitskiĭ, L. V., 208, 2237
Metzer, R. B., 2922
Meyer, F. H., 1410
Meyer, J.-A., 39, 1368, 1374e, 1716, 2004
Meyer, R. W., 2629
Miah, M. A. J., 9781
Michail, S. H., 1971, 3580
Michel, E., 624
Michel, L. J., 2469
Michel, M., 1304
Michlewska, C., 1282
Miciński, B., 277
Mickail, K. Y., 41
Miczyński, K. A., 2642
Middleton, J. T., 3701
Midha, S. K., 2784
Midžić, S., 2275
Miernik, J., 19
Miething, E., 342
Mihalovics, E., 1743 l
Mijušković, M., 2674
Milan Caglevio, D., 3087
Milatović, I., 912
Milbrath, G. M., 2941
Milheiro, A. V., 1254
Milholland, R. D., 1207
Miličić, D., 1802, 2308, 3589
Milinkó, I., 391f., 2568
Miller, D. A., 1567
Miller, D. R., 2861, 2867, 2871, 2872, 2880
Miller, G., 3382
Miller, L. P., 434, 2600
Miller, P. M., 613
Miller, R. E., 3215
Miller, T. D., 401h
Miller, V. L., 844
Milligan, G., 629
Mills, J. T., 143
Mills, W. R., 2013
Milne, R. G., 467, 2109
Milton, J. M., 1009
Minassian, V., 3063
Minbaev, R., 1140
Mink, G. I., 1350
Minkevich, I. I., 565, 3153
Minkov, I., 2986
Minoiu, N., 1377 l
Minton, N. A., 376, 3643
Mircetich, S. M., 1430, 2764, 3004, 3499, 3669c
Mirchink, T. G., 3360
Mirić, M., 1585, 2905
Mirică, A., 1377o
Mirică, I., 1377o, 1377p
Mirkamali, A., 1810
Mirocha, C. J., 2367
Mirpulatova, N. S., 209, 2487
Misato, T., 2159
Mischke, W., 246, 395 l
Mishra, A. B., 2132
Mishra, A. K., 3295
Mishra, M. D., 1114, 2105
Mišiga, S., 20
Mišović, M., 1514
Misra, A. P., 164, 182, 509, 811
Misra, B. M., 2992
Misra, D. P., 3476
Misrahi, A., 3382
Mitchell, D., 2493
Mitchell, J., 3299d
Mitchell, N., 767
Mitov, N., 2456
Mitra, S. N., 678
Mitsuhata, K., 1712, 1736
Miusov, I. N., 3046
Mixon, A. C., 429
Mizukami, T., 183
Mkervali, V. G., 2501
Mladenov, M., 536
Mobley, C. L., 234
Moffett, M. L., 280
Moghe, P. G., 1896
Mohamed, H. A., 1525
Mohammad, A., 182
Mohri, R., 1772
Molino, U. V., 1551
Moller, W. J., 1446, 3496
Molńar, J., 2529
Molot, P. M., 1110, 1374b, 1526, 1860
Monakhova, E. S., 972
Moniz, L., 531, 3339
Montacchini, F., 3706
Montaldo, A., 2248
Montegut, J., 1573
Monteiro, A. R., 822
Montgomerie, I. G., 3301b, c
Montilli, G., 2788
Moody, A. R., 555
Moore, C. J., 3694
Moore, J. F., 68
Moore, K. G., 1726
Moore, L. D., 316, 3138
Moore, M. H., 250, 2198, 2199
Moraes, W. B. C., 774
Morales R., C., 1416, 1628
Moravčík, E., 2444
Mordue, J. E. M., 42
Morea, I., 397h, k, 1377m
Moreau, B., 1932
Moreau, C., 1038
Moreau, J.-P., 1745f
Moreira, S., 1064b
Morel, G., 1051
Morelet, M., 336, 352
Morgan, N. G., 2725
Morgan-Jones, G., 42, 1035a
Mori, Y., 2228
Moriya, I., 1848
Morquer, R., 90
Mortimer, R. K., 2088
Morton, A. G., 750
Mosahebi, 3280
Moseman, J. G., 2689
Moser, M., 43
Mossamebi, H., 3262
Mostafa, A. K. M., 1570
Mostafa, I. Y., 994
Mostovoĭ, V. A., 3448
Motohashi, S., 2580

Motoi, E., 1178
Motsinger, R. E., 236, 3467
Mounat, A., 624
Mount, M. S., 3419
Movsesyan, L. I., 2732
Mowat, W. P., 3051, 3301j
Mudich, A., 1238
Mueller, W. C., 1052
Muir, J. A., 337
Mujica, F. R., 3032
Muka, A. A., 2934
Mukerji, K. G., 3731b
Mukhamedzhanov, M. V., 3118
Mukherjee, A. K., 634, 1050
Mukherjee, S. K., 3444
Mukherji, S. K., 818
Mulder, D., 1183, 1374h, 2031, 3302
Muller, A. S., 2960b
Muller, R. A., 2724
Müller-Kögler, E., 737h, 2357g
Munnecke, D. E., 41
Muñoz, A., 94
Munteanu, I., 397e, 1377c, 2149, 2150
Munthe, T., 62
Munz, K., 2479
Murakishi, H. H., 630, 2835
Murant, A. F., 1457, 2218, 3301i, l, 3650
Murata, N., 3109
Murayama, D., 600, 3071
Murphy, A. M., 2313
Murphy, H. C., 801
Murtomaa, A., 1475, 2510
Murty, N. S., 3210
Muşat, D., 3182, 3333
Musil, M., 239, 2514
Musílek, V., 1411, 1764
Muskett, A. E., 986a
Mussell, D. R., 2383, 3332
Mustafa, F. H., 3062
Mustafee, T. P., 683, 3061
Muthuswamy, G., 520, 2240
Mutkekar, M. L., 2670
Muzafarov, A. M., 3303
Mzhavanadze, A. V., 1586

Nadvodnyuk, Yu. N., 2475
Nagai, K., 171
Nagai, M., 2520
Nagamitsu, M., 2680
Nagatoma, I., 2304
Nagdy, G. A., 128
Nägler, M., 1908
Nagornaya, N. M., 209
Nagy, Sz., 3495
Naiki, T., 3021
Naim, M. S., 27, 191, 204
Nair, N. G., 3022
Naito, N., 2630
Nakagami, K., 2160
Nakamura, A., 3563
Nakata, K., 78, 307, 1270
Nakov, B., 2896
Namekata, T., 765, 2168
Nand, K., 439
Naphade, S. R., 2731
Narasimhachari, N., 2386
Nariani, T. K., 522, 1877, 2001, 3568
Nasibob, T. G., 2488
Natal'ina, O. B., 3506
Nath, R., 721, 807
Nath, S., 961
Nath, V. R., 1730
Natti, J. J., 1352
Nault, L. R., 151
Navratil, S., 2567
Nayar, R. M., 1312, 1640
Naylor, J. M., 1827
Neamţu, I., 1219
Nechaeva, A. V., 3096
Neder, R. N., 1338
Nedzvetskaya, G. L., 2730
Neely, D., 911, 2273, 2277
Negru, A., 720, 3261
Negulescu, F., 1377a, b
Nelen, E. S., 2920, 3066
Nelson, C. E., 3267
Nelson, G. A., 60
Nelson, K. E., 276
Nelson, M. R., 2348, 2941
Nelson, P. E., 1583, 1904, 2498
Nelson, R. R., 510, 1516, 2702, 3480
Nelson, W. L., 2680
Nemazi, J., 688
Németh, J., 1286, 1744c, 2497
Németh, V. M., 1743f
Nemlienko, F. E., 2477
Nemtsova, I. A., 635, 2345
Nene, Y. L., 744, 812, 1113u, 1764, 3111
Nesheim, O. N., 2985
Nette, I. T., 3345
Netzer, D., 2780
Newell, W. R., 2868
Newhook, F. J., 1693
Newsam, A., 881, 1257
Nicholls, T. H., 3235
Nichols, C. W., 3701
Nichols, L. P., 2498
Nicolson, T. H., 748, 2993
Niederkorn, M. O., 25
Niederpruem, D. J., 1778, 3009
Niehaus, M. H., 3477
Nielsen, J., 2631
Nielson, K., 688
Nielson, L. W., 3196
Niemann, E., 1668, 1810, 1835
Nienhaus, F., 1045
Niessen, H., 2382, 2384
Nikishova, V. V., 438
Nikitina, A. I., 1511
Nikitina, E. T., 3242
Nikitina, E. V., 1246
Nikitina, K. V., 857
Nikitina, M. A., 696
Nikolaeva, M. I., 237
Nikulina, N. K., 3407
Nilsson, T., 2892
Nirwan, R. S., 1930, 3169
Nishida, K., 887
Nishihara, N., 552, 1168, 1175, 2350
Nishiyama, K., 2693
Nishizawa, R., 1756
Nitzany, F. E., 3518
Noble, M., 3058
Nøddegaard, E., 1761
Noll, A., 394b, 2551
Nonaka, F., 3716
Norberg, S.-O., 2060
Norman, J., 3356
Normand, R. A., 3389
Noronha-Wagner, M., 1132
Norton, J. D., 1738
Notoatmodo, S. S., 3228
Novacký, A., 2112
Novak, J. B., 1177
Nováková, J., 134
Nover, I., 1486, 1504
Novikova, N. D., 1025
Novotel'nov, N. V., 2093
Numić, R., 703
Nuridzhanyan, K. A., 1399, 1800
Nutman, F. J., 1379f
Nuttall, V. W., 2321
Nyerges, P., 3522
Nyland, G., 401b, d
Nyuksha, Yu. P., 3703

Oberhofer, H., 2757
Oberle, G. D., 852
Oblisami, G., 1392, 3369
O'Brien, R. G., 311
Obst, A., 2679
O'Donnell, B. H., 3664b
Oehrens, E. B., 3032
Oertel, C., 224
Oganyan, É. A., 3486
Ogawa, J. M., 1636, 3694
Ogolevets, Ya. G., 2020
Oguchi, T., 1869
Ohler, J. G., 3530
Ohman, J. H., 2566
Ohmori, K., 515
Okasha, K. A., 3511
O'Kennedy, N. D., 2771
Okhovat, M., 3262
Oksent'yan, U. G., 3637
Okusanya, B. A. M., 704
Olangiu, M., 1377j
Old, K. M., 1021
Oleĭnikova, V. M., 2676
Olembo, T. W., 1379e
Oliker, M. D., 972
Ollagnier, M., 2804
Olofinboba, M., 645
Olofsson, B., 1235, 2548
Olofsson, J., 2906
Olsen, C. M., 1428
Olsen, O. A., 60
Olson, K. C., 1735
Olsson, K., 1185, 1201, 2527
Olteanu, G., 3091
Onda, H., 2706
Onoe, T., 2630
Onofrash, L. F., 1198
Oort, A. J. P., 3671
Ordish, G., 392b, 1374a
O'Reilly, H. J., 401d, 2536
Orellana, R. G., 2012
Orieux, L., 1065
Orieux, L. M. M., 1806
Orinshtein, Z. A., 2474
Orjuela, J., 1825, 1849
Orlandi, E., 3247
Orlicz, A., 1331
Orlob, G. B., 3387

Ortega, C. A., 1538
Orth, H., 1590
Osgood, J. W., 1574
Oshima, N., 1287, 2111, 2327
Oshmarin, P. G., 404
Ostazeski, S. A., 1597, 2518
Osterroht, B., 3666m
Ostroukhov, M. A., 2134
Ota, Y., 3112
Ott, H. W., 3263
Otta, J. D., 527
Ou, S. H., 169, 513, 1868
Ouellette, G. B., 1315
Ovcharenko, G. V., 1197
Ovcharov, K. E., 1138
Overeem, J. C., 231
Owusu, G. K., 2334
Özalp, M. O., 709, 2163
Özbas, O., 2257
Ozeretskovskaya, O. L., 2237

Pacetto, M., 1884
Paclt, J., 1205
Pacumbaba, R. P., 3074
Paddock, W. C., 986q
Paden, J. W., 1422
Padmanabhan, S. Y., 172, 176, 1113r, s, v, x, y, z, 1769i, 1872
Pady, S. M., 2203, 2969
Paetzholdt, M., 357, 2357d
Page, O. T., 2401, 2549, 3543
Pai, H. S., 3590
Païkin, D. M., 2975
Pala, J., 500, 792
Palenzona, M., 2356h, 3709
Pálfi, G., 2158
Paliwal, Y. C., 504, 2123
Páll, O., 3182, 3333
Palti, J., 1073, 1466, 1555
Panaligan, D. R., 1551
Panarin, I. V., 232, 3403
Panasenko, V. T., 1004
Pandey, K. R., 442
Pandey, M. C., 3012
Pandila, M. M., 647
Pandotra, V. R., 2229
Pandurangan, S. V., 3107
Panić, M., 1530, 3622
Panjan, M., 1642
Pan'ko, N. A., 2366
Panton, C. A., 244, 556
Papasolomontos, A. A., 188, 1123, 3113
Papavizas, G. C., 760, 1775, 2365, 2408, 2615, 3023, 3367, 3669g
Papoyan, F. A., 387
Pappelis, A. J., 806, 1535
Pappo, S., 257
Parashar, R. D., 121, 196
Parbery, D. G., 452, 3344
Parish, C. L., 401c
Park, D., 1780, 2051, 2052
Parker, C. G., 1376h
Parker, M. C., 3269
Parker, M. S., 2090
Parkinson, D., 1022, 1780, 2370
Parmegiani, R., 2599
Parmelee, J. A., 1791
Parmentier, G., 293, 1821, 2586b
Parmeter, J. R., 1693, 2629
Parris, G. K., 670, 2592
Partridge, A. D., 1684
Partridge, J., 3117
Pašmíková, A., 20
Patel, M. K., 326, 1885, 3101, 3317
Patel, P. N., 3143
Patel, R. S., 1885
Pathak, V. N., 269, 537, 1500, 3641
Patik, C. M., 1789
Patil, B. P., 786
Patil, P. L., 2604
Patil, S. S., 2839, 3357
Patiño, H. C., 1939
Patrick, Z. A., 1429
Patton, R. F., 3235
Paul, A. G., 3001
Paul, H. L., 394e, 1160, 2649, 3385
Paulech, C., 2141, 2465
Paulechová-Kraliková, K., 255
Paulsen, A. Q., 3156
Paulus, A. O., 2347
Pavgi, M. S., 519, 870
Pavlenko, V. V., 560
Pawsey, R. G., 349, 3608
Paxton, J. D., 2703
Payak, M. M., 804, 1082, 1113b, d, 3372, 3552, 3738
Payen, J., 2315
Payne, M. G., 3258
Pearson, R., 1022
Pecaut, P., 1745g
Pechora, M. I., 627
Pedziwilk, Z., 2074
Pegg, G. F., 2558
Pegg, K. G., 280
Pekhterov, V. V., 2494
Pelet, F., 2761
Pelham, J., 3570
Pelhâte, J., 3426
Pelletier, G., 2625
Pelletier, R., 651
Pelletier, R.-L., 4c
Peloquin, S. J., 597f
Penchi, L., 1745s
Penčić, V., 1522, 2147
Penna, R. J., 1376c
Pentland, G. D., 648, 1773, 2072
Pepin, H. S., 263, 2219
Pepper, E. H., 1529, 3084
Perdomo, R. E., 2250
Peregrine, W. T. H., 1747, 2785
Pereira, A. L. G., 726, 869
Pereira, J. L., 1888
Peresypkin, V. F., 314, 2258
Pérez, J. E., 305
Pérez Rebollo, B., 1745t
Perez-Ugalde, G., 597f
Peri, G., 3172
Peries, O. S., 3549
Perišić, M., 1594, 3622
Perlman, D., 423, 995
Pérombelon, M., 3301f
Perreau-Bertrand, J., 1435
Perrin, D. R., 1380e, 1420
Perrotta, G., 1970, 2356i
Persecă, E., 1236, 3182, 3188, 3275, 3333
Persiel, F., 3298
Person, C., 8
Persoon, C. H., 1032
Peruanskiĭ, Yu. V., 109
Pesante, A., 650, 662
Peschel, R., 2029
Peters, D., 287
Petersen, D. H., 259, 261
Peterson, G. W., 335, 2862, 2873
Peterson, H. I., 1844
Peterson, J. L., 229, 2504
Peterson, R. S., 91, 356, 1692, 2302
Petrescu, M., 1377n
Petrlík, J., 1937
Petrlík, Z., 590, 591
Pettersson, B., 2406
Pettit, R. E., 2017
Petzold, H., 2357e
Pfaeltzer, H. J., 1600
Phatak, H. C., 422, 1672, 2106
Phelps, R. H., 736
Philipp, W., 246
Phillip, M. J., 630
Phillips, D. H., 3219
Picci, G., 2973, 3331
Picken, J. M., 995
Pidoplichko, V. N., 2581
Piechowiak, K., 1643
Piedade, J. R., 740
Piening, L. J., 1101, 2143
Pierre, R. E., 955
Pierson, C. F., 2635
Pigatti, A., 2043
Pigatti, P., 2043
Piggott, W. R., 2409
Piglionica, V., 2259, 3500
Pillai, N. M., 2824
Pillai, S. N., 3210, 3472
Pine, T. S., 853, 1664, 2210
Pirmatov, A., 2488
Pirozynski, K. A., 1035a
Pis'mennyĭ, N. R., 1691
Pitre, H. N., 1106
Pitt, D., 3717
Plate, H.-P., 833, 1159
Platonova, E. G., 2387
Platt, W. D., 354
Pletser, J., 158, 1743n
Plunkett, B. E., 36
Plurad, S. B., 566
Pochard, E., 1745h, 3297
Podhradszky, J., 1743k
Poelt, J., 2080
Pohjanheimo, O., 1476
Pojnar, E., 1963
Polák, J., 686, 1999, 2508
Polák, Z., 1374s, 1804, 3056
Polanco, C. D., 1381a, g, i, k
Põldmaa, P., 2079
Poletaeva, V. F., 2726
Polgár, S., 174
Polyakov, I. M., 1382, 1569
Polyakova, G. P., 486, 2494
Pomerleau, R., 651, 3582
Pommer, E.-H., 1093, 1374i, 1375j
Ponchet, J., 2356c
Pont, W., 311
Ponton, R. E., 1574
Poós, K., 1743r
Pop, I., 1178, 2135, 2146

Popescu, V., 2044, 3358
Popkhristov, V., 1667
Popov, A., 3433
Popov, V. I., 34, 1479, 1569
Popova, G. A., 487
Popova, I., 2026
Popova, T. T., 535
Popow, G., 1484
Poppe, J., 1374m
Populer, C., 2586a
Popushoĭ, I. S., 1198, 1279, 1598
Porter, D. M., 1149, 3644
Posnette, A. F., 2530
Pospíšil, B., 1899
Pospíšilová, D., 134
Post, F. J., 1925
Potlaĭchuk, V. I., 3152
Potter, H. S., 597d
Pound, G. S., 2898, 3256
Povish, W. R., 2437
Powell, D., 2778, 2779, 3680
Powell, W. M., 3225
Powers, H. R., 3600
Pozděna, J., 2557, 3561
Pozsár, B. I., 1743p, z, 3148, 3720
Prabhu, A. S., 122, 2128
Prakasam, P., 1658
Pramer, D., 3028, 3029, 3724
Prasad, H. C., 471
Prasad, I., 3724
Prasad, K., 1738
Prasad, M., 374
Prasad, N., 194, 432, 819, 2062, 2952
Prasad, S. S., 864, 2798
Prasada, R., 111, 122, 153, 795, 2128
Prasher, R. D., 2953
Praslička, J., 1739
Pratt, M. J., 978g
Pratt, R. M., 1124
Preece, T. F., 850, 3350
Prentice, R. M., 3220
Prescott, J. M., 2672
Presley, J. T., 825
Price, D., 550
Price, W. C., 1454, 1637, 2802
Pridantseva, E. A., 487, 1474
Příhoda, A., 325
Prikhod'ko, V. P., 1917, 2749
Pring, R. J., 1103
Pringle, R. B., 803
Pristavko, W. P., 737a
Pritchard, N. J., 31
Procter, C. H., 2904, 2943
Prodan, D., 2135
Proeseler, G., 1798
Prokof'eva, A. F., 1763
Prostakova, Zh. G., 1179, 1598
Prota, U., 854, 855
Protsenko, A. E., 3526
Protsenko, E. P., 3473
Provvidenti, R., 1414, 2775, 3655
Prpić, Z., 1647
Prutskova, M. G., 3415
Ptskialadze, L. I., 268
Pugh, C. G., 3301a
Pullen, M. E., 2584e
Punithalingam, E., 42, 3731a
Purandare, G. M., 3337
Puranik, S. B., 594, 1113k
Purcifull, D. E., 2223, 2423, 3053, 3653
Purdy, L. H., 1088
Puri, Y. N., 681
Purss, G. S., 495
Pushkina, N. N., 3152
Pyle, J. L., 1574
Pyshina, Z. S., 2772

Quacquarelli, A., 3296, 3394, 3397, 3519
Quak, F., 1062
Qualset, C. O., 799
Quebral, F. C., 1370
Quemener, J., 1231
Quraishi, M. A., 333
Qureshi, A. A., 2816

Raa, J., 3666e
Raabe, R. D., 2734
Rabbitt, A. E., 551
Rabinovich, S. V, 2124
Rabotnova, I. L., 3695
Rachie, K. O., 1113 l
Rackham, R. L., 1886
Racovitza, A., 2260
Radović, V., 1609
Rădulescu, E., 397e, 987, 1377a, b, 2149, 2150
Radzevenchuk, I. F., 2986
Rafailă, C., 1277n, 1916, 1935
Ragab, M. M., 3633
Ragetli, H. W. J., 65
Raggi, V., 751, 791, 956, 3270
Ragozzino, A., 1301, 3501
Ragsdale, N. N., 746
Ragunath, T., 2513
Rahman, M. U., 202
Rai, I. S., 217
Rai, J. N., 48, 1533, 3623
Rai, P. V., 3195
Raicu, C., 1377e, f, 1914
Raiitviir, A. G., 454
Raikov, E., 2541
Rainaldi, G., 3069
Raj, H., 3339
Rajagopalan, K., 3180
Rajasingham, K. C., 3743
Rajendren, R. B., 526
Raju, D. G., 2125
Rakhimbaev, A. A., 2489
Rakús, D., 20
Ralijaona, D., 685
Ram, A., 2719
Ramabadran, R., 3038
Ramadasan, A., 3529
Ramakrishnan, K., 421, 534, 1867
Ramakrishnan, L., 1867
Ramalingam, A., 173
Ramalingam, M., 218, 421, 534
Ramamurthi, K., 1392
Ramaseshiah, G, 1757
Ramoser, K., 2757
Randhawa, N. S., 199
Rane, M. S., 1113a
Rangarajan, M. 162, 411
Rangaswami, G., 407, 507, 808, 1113h, 1392, 1406, 1424, 2177, 3369
Ranney, C. D., 1575
Rao, A. S., 160, 1080
Rao, B. R. S., 413
Rao, B. S., 1257
Rao, D. G., 470, 2167, 3438
Rao, P. N., 3642
Rao, V. G., 1465, 1629, 2656
Rao, Y. P., 593, 813, 1547, 1942, 3110
Raper, C. A., 3378
Raper, J. R., 3378
Rapilly, F., 118, 2683, 3018, 3379
Rapoport, I. A., 2329
Raski, D. J., 2537
Rasmussen, A. N., 1761
Rast, A. T. B., 1288, 1289
Rasulev, U. U., 455
Ratcliffe, T. J., 841
Rattan, B. K,. 195
Rattba, H., 2837
Raw, F., 1780
Rawla, G. S., 2063
Ray, P. R., 2712
Raychaudhuri, S. P., 148, 163, 470, 471, 504, 522, 634, 721, 1113f, 1114, 1672, 1877, 2105, 2719, 3342
Raymer, W. B., 1232
Rayss, T., 46f
Razvyazkina, G. M., 486, 1474, 2494
Read, D. J., 1324, 2876
Read, W. H., 390r
Reber, H., 17, 1026
Reboul, A., 327
Reddy, D. B., 747, 980, 1000, 2034, 2048
Reddy, D. V. R., 2927
Reddy, M. K., 2727, 3666k
Reddy, M. S., 2927
Reddy, P. R., 1113s, 1872, 1873
Reddy, T. K. R., 431
Redfern, D. B., 2564, 3604
Redhead, J. F., 2050
Rees, M. W., 3277
Reeve, R. M., 3197
Řeháček, Z., 2095
Reichert, I., 1073
Reĭfman, V. G., 599
Reinbergs, E., 1852
Reindl, J., 922
Reinmuth, E., 3365
Reisener, H.-J., 1083, 1823
Reitz, H. J., 1557
Remmenga, E. E., 3258
Remneva, Z. I., 3544
Renard, J.-L., 85, 2073
Renaud, R., 1615
Renfro, B. L., 163, 804, 1113b, d, l, q
Resnick, M. A., 2088
Reusser, H., 2543
Reutskaya, L. N., 2694
Revilla, M. V. A., 1933
Rexrode, C. O., 3223
Reyes, J. C., 2710
Reyes, T. T., 262, 2831

Ribaldi, M., 745
Ribeiro, O. K., 3669d
Ribeiro, R. D. L. D., 2021
Ricard, J. L., 1334, 2570
Ricardo, C. P. P., 2481
Ricaud, C., 3198
Rich, A. E., 555
Rich, S., 373, 2610, 3702
Richard, G., 1480
Richardson, B. A., 3250
Richardson, H. B., 276
Richardson, L. T., 978c, 2413
Richardson, M. J., 3058
Richmond, D. V., 3689
Richter, E., 2234
Richter, J., 472, 1194
Richter, W., 394i
Řičičová, A., 2095
Ridé, M., 3227, 3601
Rifai, M. A., 3733
Riffle, J. W., 1980
Riggs, R. K., 1419
Riley, R., 1834
Rintelen, J., 1111, 1861
Risser, G., 2947
Ristanović, M., 2766
Ritter, G., 342, 3019
Rivera, C. T., 513
Rivera, J. R., 302, 1261
Rizvi, N., 3673
Robayo, G., 1849
Robbins, M. L., 3669f
Robbs, C. F., 2021
Roberson, J. A., 3044
Robert, A. L., 3437
Roberts, B. J., 3078
Roberts, B. R., 653
Roberts, D. A., 1454, 1637, 2802
Roberts, D. W., 737e
Roberts, F. M., 1379f
Roberts, I. M., 3052, 3301h, i
Robertson, G. I., 1292
Robinson J. B. D., 1563
Robinson, P. M., 2051, 2052
Robinson, R. A., 2358, 3194
Robinson, V. S., 2299
Rochefort, K. J., 1627
Rochow, W. F., 1078
Roder, W., 139, 1820
Rodrigo, W. R. F., 1269, 1961
Rodriguez, B., 3177
Rodríguez, R. A., 2960d, e
Rodríguez A., P. J., 2117
Rodriguez - B a r r u e c o, C., 3348
Rodriguez-Kabana, R., 184, 430, 2412, 3368
Roelfs, A. P., 3078, 3405
Rohloff, I., 384
Rohrbach, K. G., 2214, 3497
Rohringer, R., 105, 788, 986i, 1085
Roland, G., 1665, 2586e
Roll-Hansen, F., 902, 914, 1695
Roll-Hansen, H., 1695
Romagnesi, H., 52
Romanchenko, A. A., 2538
Romero, S., 1242
Romig, R. W., 3078, 3404, 3405
Roncadori, R. W., 2870
Roosje, G. S., 3302
Roperos, N. I., 267
Rosen, L., 2429
Rosero, M. J., 2156
Rosinski, M. A., 1789
Ross, A. F., 1271, 3209
Ross, E. W., 3230, 3578, 3603
Ross, J. P., 2919, 2921
Ross, R., 2617
Rosser, W. R., 2677
Rossetti, V., 2168
Rossi, L. A., 1556
Rossouw, D. J., 2692
Rotem, J., 2832, 3217
Roth, J. N., 2467
Rothacker, D., 286
Rothwell, J. B., 3571
Rotmistrov, M. N., 3335
Rouchanzamir-Hedjazi, M., 2828
Rounsville, G. B., 1627
Rouxel, F., 1374f
Rowan, S. J., 3234
Rowell, J. B., 797, 2666
Roy, A. K., 3011
Roy, M. K., 153
Roy, R. K., 509
Royle, D. J., 1635, 3524
Rozinskiĭ, Sh. A., 1279
Rozmus, M., 798
Rtishcheva, A. I., 237
Ruban, E. L., 3351
Rubens, T. G., 3664e
Rubin, B. A., 1997
Rubio-Huertos, M., 684, 1850, 2572
Rudolph, K., 1353
Ruggeri, D., 716
Ruiz Castro, A., 273
Rumberg, V., 821
Runov, V. I., 206, 1013, 1014
Ruppel, E. G., 689, 2000
Rusch, V., 2371
Russell, G. E., 2575
Russo, M., 2352, 3296, 3397
Ruthven, A. D., 1655
Ryabkova, N. A., 2776, 2986
Ryabtseva, N. A., 2227, 2792
Ryan, C. L. J., 1375u
Rỹndina, M. I., 1247
Rypáček, V., 1698
Rỹsbaeva, A., 2490
Ryugo, K., 2526, 3511
Ryvarden, L., 1438
Rỹzhkov, V. L., 1795

Saad, A. T., 1045
Saaltink, G. J., 2500
Saari, E. E., 2126, 3417
Sachchidananda, J., 317
Sachs, G., 285, 1944
Sackston, W. E., 4d, 978j, k, l, m, 1445, 1941
Sadasivan, T. S., 1769a, 2391
Sadowski, S., 1503
Sadullaev, F., 1139
Sadỹkkhodzhaeva, N. G., 3015
Saettler, A. W., 2311
Safeeulla, K. M., 3036
Sagasta-Azpeitia, E. M., 1745q
Sahai, D., 1649
Sahni, M. L., 741, 967, 2027
Sahni, V. P., 428, 753
Saito, I., 3040
Saito, T., 2706
Saito, Y., 1822
Sajó, Z., 514
Sakaguchi, S., 3109
Sakai, R., 609
Sakamoto, M., 2897
Sakharovskaya, G. A., 501
Sakharovskaya, G. N., 3557
Sako, N., 468
Saksena, H. K., 961, 3440
Saksena, K. N., 3487
Saksena, R. K., 439, 759
Saksena, R. P., 433
Salas, A., 1560
Salerno, M., 193, 1745r, 1883, 1884, 2356i
Salgado, A. R., 362
Salgado, C., 822, 823, 829, 1565
Salibe, A. A., 2164
Salikhova, B. S., 1014
Salinas-Quinard, R., 2288
Salis, E., 525, 547
Salman, A. G. F., 1700
Salomao, T. A., 1291
Salt, G. A., 2584m, n, p, 3219a
Šaltenis, B., 2319
Salunkhe, D. K., 1925
Salunskaya, N. I., 1491
Samaddar, K. R., 1854
Samborski, D. J., 105, 986b, i, 1085, 1830, 1831, 3075
Sampathnarayanan, A., 530
Sampson, P. J., 2544
Samtsevich, S. A., 3719
Sanderson, F. R., 2118
Sandhu, S. S., 303, 3199
Şandru, I., 397i, 1377c, e, 2148
Sanin, M. A., 386
Sankhla, H. C., 364, 866, 2061, 2923
Santerre, J., 1251
Santiago, J. C., 490
Santifer, C. S., 1676
Sappenfield, W. P., 1894
Sarbhoy, A. K., 45, 439
Šarić, A., 912
Sarli, C. A., 1840
Sárospataki, G., 1215, 1216, 1744a, 3519
Sarỹmsakova, R. K., 1405
Šašek, V., 1411, 1764
Sastry, K. S. M., 230, 633, 2229
Satchuthananthavale, V., 35
Sato, K., 178
Sato, N., 609, 2239
Sato, S., 2439
Satour, M. M., 2083
Satyanarayana, G., 3203
Satyanarayana, V., 1658
Sauthoff, W., 3941, 1374c, 2357k
Savage, E. J., 3742
Savary, A., 2589
Savchenko, R. V., 363, 1997
Savile, D. B. O., 340, 2622, 2623, 3031

Savin, G., 3173
Savio, A., 18
Savory, B. M., 1599
Săvulescu, A., 97, 408, 622
Sawicki, K., 16
Saxena, K. M. S., 304, 1518
Saxena, V. C., 3623
Sayre, R. M., 2326
Scalla, R., 3205
Scànnerini, S., 3709
Scaramuzzi, G., 1807, 1880, 1881, 1882
Schade, C., 568, 1193
Schafer, J. F., 1829, 2451, 2464, 2467, 2690
Schaller, C. C., 2278
Schánĕl, L., 679
Scharen, A. L., 2458
Scharif, G., 1579, 1668, 1810, 1835, 2114
Schauz, K. 1838
Scheffer, R. P., 803, 1516, 1854
Scheifele, G. L., 2697, 2702
Scheifle, G. L., 2590c
Schenk, N. C., 1365
Schieber, E., 2960a, b, 3446
Schiffmann-Nadel, M., 2636
Schiltz, P., 1669, 1670
Schisler, L. C., 3663
Schlegel, D. E., 986e
Schlegel, H., 2087
Schlösser, L.-A., 660
Schlösser, U. G., 1998
Schmelzer, K., 70, 221, 1043, 1362, 1455, 1587, 1743a, 2568, 3383, 3589
Schmid, G., 1922
Schmidle, A., 246, 394k, 848, 1602
Schmidt, E., 1377c
Schmidt, H. B., 70, 135
Schmidt, H. E., 1587, 1938
Schmiedeknecht, M., 494, 557
Schmitt, C. G., 623
Schmitthener, A. F., 2507, 2657, 3636
Schmutterer, H., 395f, 1714
Schnaak, W., 2837
Schnathorst, W. C., 1146
Schneider, C. L., 688, 2313
Schneider, H., 3441
Schneider, I. R., 3562
Schneider, R., 227, 833, 1159, 2357d, 2499
Schoene, K., 1243
Schoeneweiss, D. F., 915, 1393
Scholten, G., 1c, 3459a
Scholten, H., 3243
Scholz, F., 1504
Schönbeck, F., 3366
Schönbeck, H., 3613
Schönhar, S., 2272, 2295, 2296, 2298
Schramm, G., 1661
Schreiber, L. R., 906
Schrödter, H., 294
Schroeder, W. T., 3655
Schroth, M. N., 862, 2373, 2536, 3322
Schuch, K., 3951
Schüepp, H., 1206, 1432
Schuhmann, G., 1819, 2357b
Schultz, O. E., 3485
Schulz Schomburgk, E., 94
Schumann, G., 1092
Schumann, K., 71
Schuster, G., 873
Schuster, M. L., 2325, 2326
Schütt, P., 2294
Schwartze, C. D., 1623
Schwarz, R. E., 524
Schwinn, F. J., 2087d
Scott, De B., 3737
Scott, H. A., 2316, 2640
Scott, R. K., 2899
Scuflaire, R., 1374p
Scurti, J. C., 543, 674
Seaman, A., 2395
Seberry, J. A., 1127
Šebesta, J., 113, 1824, 2454
Sehgal, H. S., 3605
Sehgal, J. L., 185
Sehgal, S. N., 2065
Seiber, J. N., 2383
Seidel, D., 3255
Seifert, K., 2886
Seinhorst, J. W., 1374u
Selik, M., 1994
Selivanova, T. N., 237
Semal, J., 1049, 3047
Seman, É. O., 3450
Semancik, J. S., 2644
Semecnik, M. A., 2795
Sempio, C., 751, 791
Sen, M., 3605
Sequeira, L., 736, 2558
Serafim, F. J. D., 3400
Serafim, M. C., 3400
Seraya, V. I., 2446
Serbănescu, A., 397, 1377
Serdyuk, M. Ya., 3423
Sergeeva, V. G., 3471
Servazzi, O., 815, 816
Seth, M. L., 148, 721, 883, 1113f
Setliff, E. C., 1379d, 2863
Setlow, R. B., 2405
Sevcenco, V., 1377j, m
Severin, V., 397c, 1377h
Shaaban, A. S., 204
Shabanov, D., 1667
Shacked, P., 2614
Shackleton, D. A., 3679
Shaffer, R. L., 3310
Shah, S. M., 2115
Shain, L., 666
Shaldzhyan, L. K., 1666
Shalla, T. A., 3558
Shal'tyanis, B. V., 2190
Shamaev, G. P., 3327
Shands, H. L., 2464
Shanmuganathan, N., 620a, 1268, 1961, 1962
Shanmugasundaram, E. R. B., 530
Shannon, E. L., 2695
Shapova, A. P., 2344
Sharma, B. L., 1265
Sharma, D. C., 470
Sharma, K. B., 435
Sharma, L. C., 2923
Sharma, M. N., 678
Sharma, O. P., 1531, 2682
Sharma, R., 2153
Sharma, S. K., 2669
Sharma, S. L., 1113a
Sharma, V. C., 3154
Sharp, E. L., 32, 1089, 1832
Shaskol'skaya, N. D., 501, 3557
Shavrova, L. A., 331, 539
Shaw, D. E., 203, 2700, 2721
Shaw, M., 33, 830, 1827, 1828, 2493
Shawky, M. I., 3633
Shcharbakow, U. A., 1497
Shear, C. B., 1605
Sheffield, F. M. L., 1379b, 2785
Shekhovtsova, N. B., 586
Shemakhanova, N. M., 3349
Shepard, J. F., 710, 3475
Shepherd, C. J., 1276, 1380b
Shepherd, R. J., 3627
Sher, S. A., 986f
Sherengovÿi, P. Z., 2192, 3159, 3510
Sherf, A. F., 3621
Sheridan, J. E., 2937, 3651
Sherwood, R. T., 665
Shestiperova, Z. I., 2895, 3311
Shestopal, Z. A., 2531
Sheu, C. W., 3001
Shevchenko, S. V., 1329
Shevel', N. E., 2552
Shibukawa, K., 1327
Shields, J. K., 2305, 2890, 2891
Shifman, I. A., 561, 3489
Shifrina, G. D., 2492
Shigo, A. L., 676
Shikata, E., 74, 3071
Shiltawy, E. M., 128
Shimkunas, R. A., 2262
Shipton, P. J., 125, 1375g
Shipton, W. A., 240, 241, 1086, 2130, 2665, 3072
Shishiyama, J., 1869
Shivanandappa, N., 1534
Shivanathan, P., 828
Shivrina, A. N., 403, 2387
Shmanenkova, T. N., 3638
Shmotina, G. E., 53
Shoemaker, P. B., 2934
Shoemaker, R. A., 359
Shomova, E. I., 1398, 3542
Shrimpton, D. M., 3252
Shterenberg, P. M., 588, 2538, 3520
Shukla, D. D., 537, 3641
Shukla, U. S., 3200
Shuring, C. G., 3299f, g, i
Shvartsman, S. R., 1034, 2415
Shÿrkevich, R. I., 1497
Siddig, M. A., 1564
Siddiqui, E. M., 3141
Siddiqui, M. A., 399d, 1891
Siddiqui, M. W., 2188
Siddiqui, W. M., 2516
Sidenko, I. E., 2474, 2477
Sidhu, J. S., 426
Sidorova, I. I., 981, 1436
Siegel, M. R., 746, 3688
Sigel, E. M., 3663
Signoret, P., 1275

Sikora, A., 1975
Silbernagel, M. J., 1350
Silberschmidt, K., 290, 778, 1055, 1056, 1291
Sill, W. H., 3074
Silva de Sequeira, M. P. da, 2003
Silveira, A. P. da, 707, 821
Silveira, S. G. P. da, 707
Silverborg, S. B., 667
Silvio Andrade, B., 3092
Simard, T., 4e, 3612
Šimkunas, R., 2261
Simmonds, N. W., 610
Simms, J. J., 3117
Simone, J., 1526
Simons, M. D., 801, 1509, 2469
Simova, D., 149
Simpson, W. R., 159
Sims, H. R., 663
Sims, J. J., 2172, 2486
Sinadskiĭ, Yu. V., 3067
Sinclair, J. B., 2377, 2597, 3452
Sinclair, W. A., 1307, 2590h
Šindelář, J., 2301
Sinden, J. W., 976, 3663
Sinden, S. L., 145, 1203, 1617
Sineavschi, I., 397d, 1377g
Singeorzan, E., 1995
Singh, A., 378
Singh, B., 1003
Singh, B. B., 1930, 3169
Singh, B. M., 57
Singh, D. B., 868
Singh, D. V., 544, 545, 546, 789, 1490
Singh, G., 115
Singh, G. P., 617, 961
Singh, G. R., 2827
Singh, H., 697
Singh, H. G., 364, 2923
Singh, J. P., 1113 l
Singh, K., 304, 619, 2065, 3200
Singh, M., 886
Singh, M. P., 107, 789
Singh, M. T., 1490
Singh, N., 36, 217
Singh, P., 1659, 2556, 3552
Singh, R., 2027
Singh, R. A., 519
Singh, R. D., 432, 2062, 2952
Singh, R. N., 3440, 3469
Singh, R. P., 741, 2027, 2808, 3395
Singh, R. S., 442, 546, 1109, 1266, 2705, 3454
Singh, S., 644, 2660, 2992, 3476
Singh, S. B., 3169
Singh, S. P., 1845, 2132
Singh, W., 1547
Sinha, A. K., 48, 1533, 2841, 3666r
Sinha, K. S., 1113c, n
Sinha, R. C., 102, 1797, 2448
Sinha, S., 1113m, 1769e
Sinha, S. K., 812
Sioussaram, D., 3512
Siradhana, B. S., 2507, 2657
Sirry, A. R., 1525
Sisler, H. D., 746, 3666o, 3688
Sisto, D., 117
Sitterly, W. R., 1737
Sivaprakasam, K., 218, 534
Sivaprakasam, S., 534
Sivaraman, N. P. C., 3444
Siverborg, S. B., 3578
Sizova, T. P., 403, 981, 1326
s'Jacob, J. C., 1817
Skadow, K., 1938
Skelly, J. M., 2590e
Skerman, V. B. D., 11
Skilling, D. D., 1694
Skilyagina, T. S., 40
Skold, L. N., 1113q
Skoog, F., 2374
Skoropad, W. P., 140
Skou, J. P., 1477
Škrobal, M., 1839
Skrýnik, E. M., 3335
Slack, D. A., 1218
Sławiński, A., 310, 1280
Sleeth, B., 2491
Slepyan, É. I., 2151, 2473, 2701
Slope, D. B., 2584 l
Slovenčíková, V., 2463
Slykhuis, J. T., 1167
Šmarda, F., 2363
Small, L. W., 1470b
Smedegard-Petersen, V., 499
Smerlis, E., 338, 2565, 2879, 2884, 3588
Smiljaković, H., 1506, 1837, 2664
Smirk, B. A., 80
Smirnova, A. D., 1520
Smirnova, K. F., 3329
Smirnova, L. V., 2403
Smith, A. N., 1447
Smith, C. B., 1605
Smith, D. G., 2059
Smith, D. H., 573
Smith, D. J., 2046
Smith, F. F., 3054
Smith, H. C., 95, 2659
Smith, H. G., 1725
Smith, I. M., 3666q
Smith, J. D., 1169
Smith, J. H., 3680
Smith, J. W. M., 3570
Smith, K. M., 2098, 2736
Smith, M. A., 950, 2659
Smith, M. E., 3700b
Smith, M. J., 1789
Smith, P. M., 390e, f, 836
Smith, P. R., 3048
Smith, R., 767
Smith, R. B., 2859
Smith, R. S., 106, 353, 355, 923, 2418, 2633, 3592
Smith, S. H., 88, 401e, 986e, 2650, 3493
Smith, W. L., 1255
Smolák, J., 1805
Snell, J. F., 995
Snow, G. A., 2869
Snyder, W. C., 824, 2322, 2911
Soans, L. C., 1050, 1274
Sodergren, W., 1162
Sohi, H. S., 1959
Sohi, S. H., 1113a
Sokolov, D. V., 403
Sokolova, É. S., 1309
Sol, H. H., 1374k, 3632
Solheim, W. G., 3583
Solov'ev, V. A., 2279, 3586
Solymosy, F., 1744b
Somers, E., 1103, 3689
Sommer, N. F., 986n
Sommereyns, G., 61, 132, 367, 483, 1821, 2586d
Sonoda, R. M., 1636
Sood, P. N., 978m
Sopko, R., 1335, 3607
Soru, E., 412
Soto, C. A., 2960d
Sotula, T. L., 2477
Soukup, J., 1589
Sousa, A. A., 1401
Southern, P. J., 2542
Southwick, F. W., 1607
Souza, D. A., 740
Sowell, G., 2926
Spaccavento, I., 117, 3420
Spatarenko, S. S., 1058
Spence, J. A., 781c, 1470c, 1571, 1572
Spencer, D., 3301e
Spencer, D. M., 2202
Spiegel, S., 2832
Spillane, P. A., 3408
Spire, D., 1231
Sprague, R., 2680
Sprea, A., 2356j
Sprecher, E., 2064
Springfield, H. W., 1980
Šprochová, H., 1100
Sproston, T., 2405
Spurr, A. R., 1363
Spurr, H. W., 1401
Sreenivasan, M. S., 3115
Sreenivasan, T. N., 2001
Sridhar, R., 975, 3106
Sridhar, T. S., 2722, 2723
Sripathi Rao, B., 880
Srivastava, D. N., 269, 382, 813, 1359, 1547, 3110
Srivastava, H. S., 793, 868
Srivastava, K. C., 433
Srivastava, K. S. L., 3691
Srivastava, M. P., 1064a, 2482, 3170
Srivastava, R. P., 413, 2596
Srivastava, S. C., 3200
Srivastava, S. N. S., 177
Stace-Smith, R., 97, 401g, 1622, 1950, 3535, 3569
Stachyra, T., 2576
Stadornov, O. I., 2793
Stafleu, F. A., 2617
Stahl, M., 1161, 1588
Stahmann, M. A., 1966, 3566
Staĭchenko, N. I., 1794, 2388, 3359
Stall, R. E., 13, 899, 1678, 2950
Stallknecht, G. F., 3259
Stambaugh, W. J., 2291
Stanghellini, M. E., 2583
Staniulis, J. P., 2317, 2318
Staňková-Opočenská, E., 542, 1589
Stanley, P. G., 1262
Stanová, M., 2502
Stapel, C., 2684

Staples, R. C., 697, 2053, 3631, 3666d
Starfinger, K., 1332, 3251
Starmachowa, B., 2618
Staron, T., 368
Starratt, A. N., 436
Starÿgina, L. P., 2175
Starzycki, S., 500, 792
Statley, J. M., 358
Staunton, W. P., 939
Stec, M., 19, 2379
Stedman, O. J., 5, 2584h
Steeger, S. A., 2902
Steere, R. L., 3669b
Stefanov, D., 1284
Stegemann, H., 394d
Steiger, A., 1699
Steindl, D. R. L., 882
Steiner, D., 392c
Steiner, P. W., 2934
Stellmach, G., 582
Stepanov, K. M., 1808
Stepanov, P. M., 576
Stephan, B. R., 456
Stephan, S., 2029
Stephen, R. C., 1423
Stephenson, W. M., 1783
Steudel, W., 942
Stevenson, C. D., 253
Stevenson, F. J., 1953
Stevenson, G., 988
Stewart, A. W., 764
Stewart, D., 1377a
Stewart, D. M., 2450, 3404
Stewart, J. K., 2582
Stewart, V. R., 116
Steyaert, R. L., 1945
Still, G. W., 3516
Stillwell, M. A., 3699
Stimmann, M. W., 701
Stipes, R. J., 906
Stobel, G. A., 3195
Stojan, E., 1377i, 1969
Stojanović, D., 1594
Stoller, B. B., 3662
Stolp, H., 1161
Stolzy, L. H., 3364a
Stone, O. M., 390i, j, m, n, o, 3462
Stoner, M. F., 3340
Stoner, W. N., 150, 782, 1079, 3432
Storey, H. H., 505, 1379a, 1515
Storozhenko, E. M., 1396
Što'ta, Z., 1839
Stouffer, R. F., 2768
Stover, R. H., 1212
Straby, A. E., 3346
Strandberg, J. O., 3618
Stranks, D. W., 3610
Streissle, G., 2429
Stretton, H. M., 1444
Strider, D. L., 640, 1972, 3305f
Strong, D. R., 1262
Struckmeyer, B. E., 1735
Strümpel, H., 1626
Strutsovskaya, E. S., 2133
Stubbs, H. F., 2926
Stubbs, R. W., 1h, 3081
Studziński, A., 2256, 3406
Sturhan, D., 395i
Štys, Z., 590, 591, 1937
Suba, T., 2148
Subba Rao, B. R., 2596
Subbarayudu, S., 1461, 2067
Subramanian, C. L., 520
Subramanian, C. V., 1769b, 3030
Subramanian, S., 202, 1121, 1561, 1889, 2722, 2723, 3445
Suciu, T., 1903
Sudia, T. W., 2361
Suerth, C. J., 2590g
Sugiyama, N., 1772
Sukhorukova, Z. A., 3335
Sulaiman, M., 1717, 1729, 2812, 2907
Süle, S., 1743v
Sulochana, C. B., 3121
Sultanov, Z. R., 2489
Sumi, H., 2160
Sumina, I., 516
Summamwar, A. S., 2106
Summers, L. A., 3692
Sumner, D. R., 160, 3095
Sundaram, N. V., 1113l
Sunderland, D. W., 1273
Surin, P., 1115, 2155
Suryanarayana, D., 195, 594, 1113k, p, 1144, 1862
Suryanarayanan, S., 1113w, 1769f
Sussman, A. S., 3676
Şuta, V., 397k, 577, 1377m, 1916
Sutherland, J. R., 1319, 2603
Šutić, D., 1451, 2210, 3427
Sutton, B. C., 3744
Suvorov, P. A., 680, 1328, 1702
Suwa, T., 3109
Suzuki, H., 1118
Swait, A. A. J., 2530
Swarmy, B. C. N., 1113o
Swenson, K. G., 701
Swift, M. J., 3020
Sylvester, E. S., 370
Szalay-Marzsó, L., 1743
Székely, I., 397f, 1377k, 1903
Szirmai, J., 1744b
Sztejnberg, A., 1102
Szürke, J., 1940
Szuszkiewicz, T. E., 1886

Tabak, H. H., 2392, 3713
Tabei, H., 2162
Taber, R. A., 2017, 2997
Taber, W. A., 2997, 3002
Tachibana, H., 2922, 3635
Tahama, Y., 655
Tajima, K., 1549
Takahashi, K., 2520
Takahashi, N., 984
Takahashi, R., 1848
Takahashi, Y., 1118
Takahi, Y., 2160
Takanashi, K., 2212
Takeda, Y., 1793
Talieva, M. N., 2020
Talmachova, A. A., 693
Talukdar, M. J., 517, 809
Talvia, P., 1378
Talvoya, P. A., 3619
Tamburi, F., 791
Tamimi, S. A., 166
Tammen, J., 842
Tan, K., 872
Tanaka, H., 2605
Tanaka, S., 2166
Tandon, I. N., 793, 2800, 3660
Tandon, R. N., 847, 1769c, 2482
Taneja, K. K., 681
Tanguy, J., 1076, 1812
Taniguchi, T., 463
Tanne, E., 3518
Tapio, E., 62, 63
Tapley, R. G., 1563
Tarasov, L. G., 2975
Tarasov, V. M., 2521
Taris, B., 327
Tarjot, M., 1811
Tartier, L., 3612
Taslakhchyan, M. G., 387
Tatarenko, E. S., 460
Tatarinova, M. M., 2171
Tate, H. D., 2385
Taylor, B., 2745
Taylor, B. K., 2522
Taylor, C. E., 2218, 2589, 3508
Taylor, D. P., 1393
Taylor, G. A., 1967
Taylor, J. B., 2658
Taylor, J. D., 1375v, 3299j, k
Taylor, J. M., 2458
Taylor, L. D., 649
Taylor, M. E. U., 3402
Taylor, R. H., 2544, 3048
Taysum, D. H., 1258
Teakle, D. S., 271
Teich, A. H., 2878
Telford, R. W., 2085
Téliz, D., 571, 2789
Teliz-Ortiz, M., 2330
Tella, R. de, 707
Temiz, K., 3577, 3647
Temmink, J. H. M., 1740, 3740
Temmlová, B., 2865
Tempel, A., 1374j, 2984, 3693
Templeton, G. E., 1539
Ten Houten, J. G., 1062
Teranaka, M., 657
Termohlen, G. P., 391d
Terui, M., 3150, 3151
Tesche, M., 2097
Tešić, T., 2664
Tešić, Ž., 1388
Teterevnikova-Babayan, D. N., 1464, 1496, 3126
Teuteberg, A., 2075
Tewari, A. K., 1533
Tewari, J. P., 48, 3623
Tewari, M. C., 678
Tews, L. L., 3714
Thanassoulopoulos, C. C. 2244, 2815
Thapar, H. S., 1003, 2992
Thapliyal, P. N., 744, 1765
Thind, K. S., 2063
Thirumalachar, M. J., 1885, 2386, 3337, 3341, 3342
Thoizon, G., 3323

Thomas, C. A., 282, 958, 2012
Thomas, C. E., 1439, 2645, 2948
Thomas, M., 918, 1613, 3157
Thomas, P. E., 2252, 3206, 3559
Thomas, P. L., 787
Thomas, P. R., 3508
Thompson, C. R., 863
Thompson, L. S., 2517, 2652
Thomson, A. D., 80
Thorn, G. D., 978c
Thorpe, H. J., 978p
Thottappilly, G., 1714
Throneberry, G. O., 1008
Thrower, L. B., 2611
Thrower, S. L., 2611
Thurston, H. D., 1671, 1849, 1955, 2535, 3185
Thyr, B. D., 2267
Tibbitts, T. W., 1735
Tichelaar, G. M., 1b, 381, 966
Tilak, K. V. B. R., 1122, 2555, 3202
Till, B. B., 3260
Timian, R. G., 1499
Tineo, E. R., 1381e
Ting, I. P., 3700e
Ting, W.-P., 473
Tinsley, T. W., 3219d
Tippett, R. L., 2825
Tippetts, R. D., 2088
Tîrcomnicu, M., 1377d, 1523, 2146
Titov, E. A., 2446
Tiwari, M. M., 1113i, 3100
Tiwari, O. P., 1943
Tkachenko, M. P., 34
To, C. M., 3319
Tochihara, H., 2309
Todd, J. M., 1376a
Togashi, J., 2897
Tokeshi, H., 895
Tokoro, M., 2066
Tokumitsu, T., 2429
Toler, R. W., 3305a
Tolkmith, H., 2383, 3332
Tollenaar, H., 1733
Toma, A., 397g
Toma, M., 3579
Tomaru, K., 75, 76, 77, 78, 307, 2255
Tominaga, T., 1171, 1711, 1911, 2693, 2746
Tomiyama, K., 609, 1240, 1407, 2239
Tomkins, R. G., 900, 1005
Tomlinson, H., 373, 2610, 3702
Tomlinson, J. A., 365, 3493
Tomov, N., 1667
Toole, E. R., 1310, 2849, 2883
Torchio, P. F., 2376
Torgeson, D. C., 1395
Toroptsev, V. V., 3411
Torȳbaev, Kh., 696
Tošić, M., 149, 1514, 3427
Tóth, O., 1743c
Toussoun, T. A., 1429
Toutain, G., 284
Touzé, A., 3725
Touze-Soulet, J.-M., 2036
Towers, B., 2291
Townsend, R. J., 985
Toynbee-Clarke, G., 242
Traylor, J. A., 401b, 3502
Treggi, G., 3069
Tremaine, J. H., 3055, 3569
Treshow, M., 3700f
Trifonov, D., 2194, 2523
Trigo Pino, M., 82
Tripathi, N. N., 1144
Trofimets, L. N., 2236
Trojan, K., 941
Tropova, A. T., 3311
Troutman, J. L., 705, 958, 3282
Troyer, A. F., 805
True, R. P., 658, 1976
Trujillo, E. E., 444, 1067, 3496
Trujillo, G., 2479
Trunov, G. A., 1917, 2749
Truszkowska, W., 1302, 1303
Truter, J. A., 2692
Tsao, T.-H., 2708
Tschabold, E., 437
Tserling, G. I., 1768
Tsȳganov, V. A., 1140
Tsȳlyurȳk, A. V., 1688, 3226
Tsȳmbal, M. M., 2446
Tu, J. C., 180, 790, 2145, 2711
Tuboly, L., 1283
Tucker, M. C., 554
Tugayé, M.-T., 3725
Türkoğlu, K., 567, 849
Turley, A. C., 959
Turley, R. H., 995
Turner, J. N., 2593
Turner, P. D., 596, 1471, 1638, 2803, 3060b, 3181, 3531, 3532
Tuşa, C., 1377c, e, 2146
Tutevich, M. T., 1279
Tverdokhleb, N. S., 1826
Twardowicz-Jakuszowa, A., 2110, 2269
Tweedie, W. R., 3072
Tyagi, P. D., 1769d, 3088
Tyler, V. E., 22

Ubrizsy, G., 44, 1404, 1437, 2619, 3735
Udagawa, A., 75, 2255
Udagawa, V., 75
Ueyama, A., 930, 1770, 1874, 2889
Uhlig, S. K., 749
Ui, T., 3021, 3040
Ujević, I., 1915
Ukrainets, N. S., 1396
Ullasa, B. A., 804
Ullrich, J., 294, 295, 1651
Ullstrup, A. J., 161, 805, 1516
Ulrychová, M., 3539
Umgelter, H., 1588
Umphlett, C. J., 3685
Unterstenhöfer, G., 2654
Uozumi, T., 628, 890
Upadhyay, R., 870
Uphof, J. C. T., 2368
Urban, Z., 46a
Urie, A. L., 592
Uritani, I., 2367, 3547
Urošević, B., 1915, 2854
Ursu, C., 397i
Uschdraweit, H. A., 394f
Usčuplić, M., 2275
Usmanov, Z., 274, 2728
Uspenskaya, G. D., 438, 981
Utikar, P. G., 1717, 2907
Uyemoto, J. K., 3207

Vaartaja, O., 443, 1028, 2285, 2411, 2601, 3596, 3729
Vacke, J., 1508
Vaclav, V., 569
Vago, C., 737f, 1745p, 2040
Vajna, L., 1743x
Vakili, N. G., 641
Valdez, R. B., 200
Valenta, V., 2510
Valenzuela B., J., 2312
Valverde, G., 2804
Vanachter, A., 1675
Van Adrichem, M., 3184
Van Andel, O. M., 3666n
Van Arsdel, E. P., 734, 2569, 3235
Van Bakel, J. M. M., 1a
Vandam, J., 3421
Van den Bos, B. G., 3693
Van den Broek, H., 318, 1675
Van den Ende, B., 2522
Van der Hoeven, A. P., 391d
Van der Kerk, G. M., 1376f
Van der Laan, P. A., 737
Van der Meer, F. A., 1e, 1062
Van der Scheer, H. A. T., 2031
Vanderveken, J., 3047
Vanderwalle, R., 132, 483, 2586d, 3047, 3428
Van der Zwelt, T., 252
Van Doesburg, J., 3459
Vanev, S., 453, 1936
Vaneva, N. A., 2293
Van Gundy, S. D., 3364a
Van Hoof, H. A., 69, 1059, 1374u
Van Kammen, A., 3279
Van Kesteren, H. A., 381
Van Niekert, B. P., 1354
Van Regenmortel, M. H. V., 2738, 2742
Van Sickle, G. A., 2868, 3604
Van Slogteren, D. H. M., 1374t
Van Steyvoort, L., 1705, 1706, 2900, 2901
Vanterpool, T. C., 127, 2997
Van Velsen, R. J., 845, 879, 2353, 2495
Van Vloten-Doting, L., 1913, 3142
Van Winckel, A., 1675
Van Zandt, J., 339
Varadarjan, P. D., 2799
Váradi, J., 1335, 3607
Varga, I., 1743e, q
Vargas, R. L. A., 1933
Varma, A., 1458, 1704
Varma, P. M., 3438
Varney, E. H., 2590g

Vasil'ev, O. A., 361
Vasil'eva, L. I., 1147, 1164
Vasil'eva, S. V., 2329
Vasil'eva, V. I., 1311
Vasilevskaya, I. A., 3335
Vasil'kov, B. P., 403
Vasyukova, N. I., 2237
Vaughan, J. G., 3374
Vazquez de Ramallo, N., 3553
Vedernikov, N. M., 669, 3593
Veen, K. H., 2977
Veeraraghavan, J., 172, 1113v, 1544, 1769i
Vegetti, G., 2103, 2829
Veiks, E. I., 2880
Veldstra, H., 3666h
Velikovský, V., 146, 1859
Velo, C., 1381 l
Venkata Ram, C. S., 621
Venkataramiah, G. H., 414
Venter, F., 391b
Ventura, E., 98
Verderevskaya, T. D., 1195, 1196
Verderevskiĭ, D. D., 2747, 2963
Vergara, C., 3032
Verhoeff, K., 1374d
Verhoyen, M., 1713
Verloop, A., 1374j, 2984
Verma, A. C., 281
Verma, B. R., 1113a
Verma, D. S., 3639
Verma, G. S., 464, 1807, 2951
Verma, H. N., 464, 1807
Verma, P. S., 1732
Verma, S. C., 793
Vermeulen, H., 3116
Verona, O., 1031, 2972, 2973, 2988, 3331, 3371
Verrall, A. F., 2290
Vertregt, N., 1957
Vesmin'sh, L. K., 1195, 1196
Vest, G., 3125, 3458
Vetrova, F. M., 1058
Vey, A., 737f, 2040
Vezina, C., 2065
Viart, M., 334, 3227
Vidaver, A. K., 2325
Videnov, B., 1920
Vidhyasekaran, P., 507, 520, 2240, 3284
Vigouroux, A., 3297
Villareal, R. L., 220
Vine, S. J., 3162
Vir, D., 3342
Vîrnă, P., 1219
Visscher, H. R., 1374t
Viswanath, S. M., 2167
Vitanov, M., 2211, 2528
Vittorio, A. di, 3666g
Vizárová, G., 2140
Vladimirova, I. L., 1763
Vladimirskaya, M. E., 3619
Vlakhov, S., 3697
Vlasov, Yu, I., 64, 1166
Vogel, O. A., 2680
Vogel, R., 1745b
Vogeler, K., 2381, 2382, 2384
Vojvodić, D., 1609
Völk, J., 394e
Volodkovich, S. D., 1396
Volovik, A. S., 612
Vol'vach, P. V., 251, 857
Von Arx, J. A., 3677
Von Aufsess, H., 2887
Von Bülow, J. F. W., 152
Von der Pahlen, A., 3567
Von Horn, A., 394a
Vonica, I., 1918
Von Pechmann, H., 2887
Von Prahl, H., 2220
Von Schmeling, B., 2385
Von Wechmar, M. B., 301, 2742
Voronin, N. G., 1520
Voronina, E. G., 737g, 2683
Voronkevich, I. V., 3638
Vörös, J., 1404
Vruggink, H., 1654
Vujičić, R., 2086
Vukovits, G., 559, 1210, 2280
Vulić, M., 603, 874
Vurek, G. G., 2091

Wache, H.-W., 2942
Wadsworth, D. F., 2186
Wagenbreth, D., 1689
Wagenfuhr, R., 1699
Wagner, F., 2139
Wagner, M., 1047
Wagnon, H. K., 3502
Wahl, I., 137, 1102
Waight, E. S., 2478
Wajda, L., 3561
Wajdová, L., 2557
Wakeman, J. R., 3207
Wakeman, R. J., 3627
Wakimoto, S., 1887
Waksman, S. A., 3314
Walch, H., 3008
Waldron, R. M., 2857
Walker, J. C., 2591, 3256
Walker, J. M., 390s
Walker, J. R. L., 3007
Walker, N., 1780
Walkey, D. G. A., 712, 3294, 3299d
Walkinshaw, C. H., 339, 1988, 3362
Wallace, J. M., 190, 1875, 1876
Wallen, V. R., 1721, 1724, 2320
Wallis, R. L., 944
Walter, J. M., 986o
Wani, W. D., 3000
Warcup, J. H., 1780
Ward, E. W. B., 978i, 2612
Wardlaw, C. W., 595
Warmke, H. E., 2830
Wascom, E. R., 1546
Wastie, R. L., 1958, 2824, 3059b
Watanakul, L., 1115
Waterhouse, G. M., 51, 3741
Waterston, J. M., 217
Waterworth, H. E., 2437, 3054
Watling, R., 56
Watson, I. A., 1483
Watson, M. A., 704, 2584d, e, g
Watterson, J. C., 2096
Way, J. M., 2938
Weathers, L. G., 523, 1553, 1554
Webb, M. J. W., 3299e
Webb, R. E., 715
Webley, D. M., 2397, 2410
Webster, C. C., 3309
Webster, R. K., 510, 766, 3694
Węgorek, W., 2116, 2956, 2957
Wehlburg, C., 1584, 2741
Weidensaul, T. C., 675
Weigl, D. R., 1291
Weil, B., 1290
Weiner, A. C., 3502
Weinhold, A. R., 761, 1429, 1774, 2008, 3722
Weinhold, D. E., 2553
Weinmann, W., 394a
Weir, L. C., 1325
Wellman, A. M., 978a
Wells, A. L., 3649
Wells, H. D., 165, 1596
Wells, J. M., 2289, 2582
Welsh, M. F., 1180
Welty, R. E., 3211
Welvaert, W., 1374g
Wensley, R. N., 978q, 2349
Wenzl, H., 291, 1224, 1648, 1952, 2546, 3308
Wernham, C. C., 1513, 2590c, 2697, 2702
Westenbaek Hansen, H., 138
Wester, R. E., 3273
Weststeijn, G., 2438
Wetter, C., 1048, 1160
Wharton, A. L., 699
Wheeler, B. E. J., 982, 2773
Wheeler, H., 1855
Whitbread, R., 1720
Whitcomb, R. F., 3669b
White, N. H., 1086
White, P. J., 1559
Whitehead, C., 1259
Whiteside, J. O., 1125, 1356
Whitney, H. S., 3252
Whitney, P. J., 3374
Whitney, R. D., 928, 3244
Whittingham, W. F., 916
Whitwell, J. D., 1375t
Wick, H., 2678
Wicker, E. F., 401i, 1690, 2289
Wickham, I., 3258
Widdowson, F. V., 2584m
Wiebe, H. J., 1361
Wiehe, A., 2241
Wienhues, A., 1489
Wienk, J. F., 538, 1901, 1902
Wiese, M., 784, 1084
Wiesner, K., 1343, 1708
Wiggell, D., 835
Wiggell, P., 1375q
Wigger, E. A., 249
Wiggs, D. N., 3204
Wijngaarden, T. P., 1348
Wilbur, W. D., 1886
Wilcke, D. E., 614
Wilcox, H. E., 3711
Wilcox, W. W., 1330, 3606

Wilcoxson, R. D., 1461, 1528, 2361, 3012
Wildermuth, G. B., 271
Wiles, A. B., 2176
Wilhelm, S., 824, 862, 3511
Wilhelmsen, G., 3609
Wilkinson, D. R., 2699
Will, N., 3191
Willer, K.-H., 2357i
Willetts, H. J., 1779, 3352
Williams, C. F., 3009
Williams, F. J., 2432
Williams, H. E., 401b, e, 3493, 3502
Williams, L. E., 151, 3730
Williams, P. G., 2493
Williams, P. H., 771, 1369, 2053, 2310, 2898, 3255, 3256, 3618
Williams, R. E., 575, 3158
Williges, G. G., 234
Willis, C. B., 2517
Willis, G. M., 3730
Wills, W. H., 316
Wilson, A. R., 3301a
Wilson, C. L., 329, 768, 1681, 3376
Wilson, D. W., 1190
Wilson, E. E., 2200
Wilson, J., 3630
Wilson, K. I., 548, 654, 3135
Wilson, R. A., 2751
Wilson, R. W., 1778
Wilson, W. C., 3114
Wimalajeewa, D. L. S., 299
Winchester, J. M., 1376g
Winder, G. H., 2584q
Windisch, S., 2087a
Wingard, S. A., 852
Witcher, W., 1020
Wittwer, S. H., 2835
Wojciechowska, H., 1412
Wolf, F. A., 3728
Wolf, G., 104, 3666c
Wolfe, M. S., 1091, 2688
Wolfswinkel, L. D., 469
Wolterson, J. F., 661
Woltz, S. S., 319, 2265
Wong, S. I., 1721
Wood, F. A., 3700a
Wood, H. N., 1390
Wood, R. K. S., 405, 1129, 3666i, r
Woodbine, M., 2395
Woodford, J. A. T., 1449
Woods, R. D., 1458, 1459, 2424
Worley, R. E., 1686, 3584
Wright, D. S. C., 892, 3564
Wu, F. S., 1220, 1339
Wu, H.-K., 2708
Wu, L.-C., 2917, 3006, 3014
Wu, R.-Y., 2713
Wysong, D. S., 2862, 2873

Yadav, A. S., 2918, 2970
Yaffe, Y., 1555
Yakovlev, V. G., 2293, 2866
Yamaguchi, A., 684, 2572, 2638, 3137
Yamamoto, H., 1848
Yamamoto, I., 1366
Yanagita, T., 2066
Yang, C.-M., 2713
Yang, L.-H., 2709
Yang, S. C., 1119
Yang, S.-M., 2908
Yankovskaya, E. N., 529
Yaroshenko, T. V., 3013
Yates, A. R., 2395
Yirgou, D., 1389, 2452
Yoder, J. P., 690
Yoneda, H., 740
Yora, K., 656, 657
Yoshi, H., 468, 1662, 1663
Yoshii, K., 1874
Young, B. R., 2943
Young, D. A., 3183, 3184
Young, H. C., 2672, 3417
Yousuf, M., 2893, 2982, 2983
Yu, C. H., 1143
Yu, P. H., 3014
Yuan, H.-F., 3104
Yun, T. G., 2108
Yunusov, M. R., 2174, 3119
Yürektürk, M., 3647
Yusef, H. M., 752
Yuzhakova, E. M., 3096

Zacha, V., 298, 371, 3656
Zachariah, K., 769, 2084
Zadoks, J. C., 112, 1155, 3132
Zafiratos, C., 1402
Zagatto, A. G., 726
Zahradníček, J., 2903
Zaiger, D., 723
Zaikin, B. A., 1396
Zaitlin, M., 989
Zaĭtsev, V. S., 2729
Zak, G. A., 1768
Zaki, A.-H. I., 3271
Zalasky, H., 1978
Zambettakis, C., 479, 2161
Zamir, K., 1418
Zandvoort, R., 1155, 3132
Zaracovitis, C., 9861
Zaroogian, G. E., 3166
Zass, E. K., 2792
Zatykó, J., 1743v
Zayed, S. M. A. D., 994
Zbarskiĭ, F. Sh., 3120
Zeid, M., 2041
Zeitoun, F. M., 2281
Zel'tser, S. Sh., 207
Želtvay, Z., 322, 1679
Zemlina, A. G., 3411
Zentmyer, G. A., 723, 863, 1221, 2436, 3004, 3446
Zettler, F. W., 1450, 2223, 3305h
Zhukovskaya, S. A., 2920
Zhuravleva, V. A., 2236
Ziller, W. G., 2860
Zimmer, D. E., 282, 592
Zinca, N., 3173
Zinno, Y., 2286, 3236
Zinov'eva, L. A., 386
Zlenko, R. N., 2196
Zlochevskaya, I. V., 3695
Zlotina, G. D., 1011, 1184, 2750
Zscheile, F. P., 1492, 2673
Zub, J., 1814, 2189
Zuberi, R. I., 3686
Zubko, I. Ya., 484
Zucker, M., 2247
Zuckerman, B. M., 1627
Zverkova, V. G., 2895
Zwatz, B., 1090, 1473, 1521, 1816
Zweig, G., 3326
Zycha, H., 2882, 3602

GENERAL INDEX

Review Articles

Organization for plant pathology in the British Isles: 321–327.
A bibliography of lists of plant diseases and fungi. I. Africa: 553–558.
HEWITT, W. B., **Viruses and virus diseases of the Grapevine:** 433–455.
SHEFFIELD, FRANCES M. L., **Closed quarantine procedures:** 1–8.
STACE-SMITH, R., **Rubus viruses and virus diseases:** 97–109.
WATERSTON, J. M., **Inoculation:** 217–222.

This is basically a host-pathogen index. Entries are analysed under the host; abstract numbers only are given under the pathogen. New records are indicated by an asterisk *.

A Host-Pathogen Index, Vols. 1–40, 1922–1961, was published in 1968 [cf. **47,** 1384].

Aapirol against *Blumeriella jaapii* on cherry, 3302c.
Aazira, apple skin browning caused by, 2031b.
Abaca mosaic virus on *Musa textilis*, transmission of, by vectors, 1577.
— — —, resistance of *Musa balbisiana* × *M. textilis* to, 220.
—, see also *Musa textilis*.
Abavit, as seed treatment for *Capsicum*, 720.
Abies diseases in U.S.S.R., 1314.
—, *Echinodontium tinctorium* on, in Canada and U.S.A., review of, 3245.
— *balsamea*, *Lirula nervata* on, in Canada, 2562a.
— —, *Phacidium abietis* on, 338.
— —, *Pucciniastrum epilobii* on, in Canada, 2562c.
— *concolor*, *Echinodontium tinctorium* on, comparison of decay caused by, with *Fomes annosus*, 1330.
— —, *Fomes annosus* on, comparison of susceptibility of, with pine, 1330.
*— —, *Furcaspora pinicola* on, in U.S.A., 2861.
— *grandis*, *Echinodontium tinctorium* on, microorganisms associated with, 2299.
— —, *Hericium abietis* on, 2858.
*— —, *Hyalopsora aspidiotus* on, in U.S.A. (Idaho), distribution of, 2860.
— —, *Macrophomina phaseoli* on, effect of soil disinfection on, 355.
— —, *Odontia bicolor* and *Pholiota adiposa* on, 2858.
*— —, *Pucciniastrum epilobii* on, in Belgium, 2586a.
— —, *Stereum sanguinolentum* on, 2858.
— *lasiocarpa*, *Echinodontium tinctorium* on, in Canada, mode of entry of, 2859.
*— —, *Epipolaeum abietis* on, in Canada, 2562e.
— —, *Odontia bicolor* on, in Canada, 2859.
— —, *Potebniamyces balsamicola* on, in Canada, 2562f.
— —, *Pucciniastrum goeppertianum* on, differentiation of, from *P. epilobii*, *Peridermium holwayi* and *P. ornamentale* seasonal manifestations of, 448.
— —, *Stereum sanguinolentum* on, in Canada, mode of entry of, 2859.
— *nobilis*, *Phytophthora cactorum* on, in England, 2584p.
Abutilon mosaic virus on *Malva parviflora*, 1056; effect of extracts from *A. striatum* on, 774.
?— — — str. on *Phaseolus longipedunculatus*, 1055.
— *striatum*, effect of extracts from, on *A.* mosaic and tobacco mosaic viruses, 774.
— *thompsonii* virus on *Malva parviflora*, 1056.
Acenaphthene, effect of, on fungi, 3714.
Acer, *Rhytisma acerinum* on, development of ascus in, 1974.
—, *Septomyxa tulasnei* on, in N. America, 643c.
—, *Uncinula bicornis* on, C.M.I. description of, 3731b.
— *pseudoplatanus*, *Gnomonia platani* on, differentiation of *G. quercina* on oak from, 911; somatic pressure cushion of, 2273.
— *saccharum*, *Armillaria mellea* on, in U.S.A., 2566.
— — dieback in U.S.A., 1305.
— —, *Fomes igniarius* on, in Canada, inhibition of, by *Hendersonia* and *Stachybotrys atra*, 649; respiratory activity of, 1973.
— —, fungi on, in U.S.A., 2566.
— —, *Pholiota spectabilis* on, in Canada, inhibition of, by *Hendersonia*, 649.
— —, *Polyporus glomeratus* on, in Canada, 649; U.S.A., 2566; inhibition of, by *Hendersonia* and *Stachybotrys atra*, 649; respiratory activity of, 1973.
— —, *Verticillium dahliae* on, invasion of, 2276.
*— *tataricum*, *Taphrina polyspora* on, in Norway, 1680.
Aceria transmitting wheat streak mosaic virus, 3411.
— *tulipae* in relation to Gramineae virus diseases, 232; to maize kernel red streak disease, 151.
Acetic acid against *Corynebacterium michiganense* and *Xanthomonas vesicatoria* on tomato, 2843.
2-acetyl-3-hydroxyfuran against *Botrytis cinerea* on grapevine, 2796.
**Achras sapota*, *Botryodiplodia theobromae* and *Pestalotia sapotae* on, in India, 1064.
— —, *Phytophthora palmivora* on, inoculation of economic plants with, 2656.
Acremoniella, electron microscopy of, 1041.
Acrex 50 against powdery mildews, 20.
Acrizane chloride against *Armillaria mellea*, 3696.

Acroconidiella tropaeoli on *Tropaeolum*, 3030.
Acrostalagmus roseus, factors affecting growth of, 1173c.
— — on fungal sclerotia, 1173b.
Actidione against *Erysiphe graminis* on cereals, 1404; plant diseases, 1404; *Pyricularia oryzae*, 2709; *Tilletia caries* on cereals, 1404.
—, ineffective against *Cronartium ribicola* on pine, 1690.
—, inhibition of *Colletotrichum coccodes* by, 3698; *Mycosphaerella ligulicola* by, 3698; pea Wisconsin streak virus by, 2002.
—, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
—, toxicity of, to rice, 2709.
— in combination, against *Uncinula necator* on grapevine, 584.
Actinomucor elegans in soil, 1427.
— *repens* in soil, 3018.
Actinomycetes, antagonism of, to *Verticillium dahliae* on cotton, 210.
—, biology of, 9a.
—, current knowledge of, monograph on, 3314.
—, effect of sealed and unsealed containers on longevity of, 55.
—, thermophilic, effect of temp. on, 23.
Actinomycin D, effect of, on *Melampsora lini* on flax, 33; on susceptibility of *Nicotiana glutinosa* to tobacco mosaic virus, 1050.
β-acylphenylhydrazine derivatives, effect of, on respiration of *Pyricularia oryzae*, 516.
Acyrthosiphon pisum not transmitting pea false leaf roll virus, 1714.
— —, retention of pea enation mosaic virus by, 370.
— — transmitting Leguminosae viruses, 2318; pea enation mosaic virus, 370, 1346, 2577, 3628; pea leaf roll virus, 3629; pea mosaic virus, 1715; pea viruses, 3264.
Adansonia digitata virus, classified with cacao mottle leaf virus, 1074.
Aechmea fasciata, *Fusarium oxysporum* f.sp. *aechmea* on, control, 1374g.
Aecidium fragiforme on *Agathis dammara*, 3228.
— *garkeanum* on *Hibiscus*, 3456.
Aegilops, *Puccinia coronata*, *P. graminis*, and *P. hordei* on, susceptibility to, 2439.
—, — *recondita* on, in Portugal, 493; susceptibility to, 2439.
—, — *striiformis* on, susceptibility to, 2439.
— *comosa*, *Puccinia striiformis* on, transference of resistance to wheat, 1834.
— *cylindrica*, *Puccinia recondita* on, reservoir for, 1487.
**Aegle marmelos*, *Stenella aegles* on, symptoms of, 2798.
Aerial spraying versus hand spraying, 1279.
Aerobacter aerogenes on cotton, 3456.
Aesculus hippocastanum, see Horse chestnut.
Afzelia bella mycorrhiza in Nigeria, *Inocybe* associated with, 2050.
Agallia constricta, clover wound tumour virus in, electron microscopy of, 74; min. conc. for infecting, 3391.
Agalliopsis novella, clover wound tumour virus in, 2428.
Agaricales, permanently stained slides of, 56.
Agaricus, see Mushroom.
Agathis dammara, *Aecidium fragiforme* on, 3228.
Agave hybrid, *Phytophthora* near *arecae* on, 1902.
— —, — *nicotianae* on, causing zebra disease, 1901, 1902.
[*Agave*] *sisalana*, see Sisal.
Agral, use of, on artichoke, 2354.
— LN in combination against apple tree pit, 2207.
Agricultural chemicals, annual list of approved, 1758.
Agrimycin 17 against *Pseudomonas tonelliana* on oleander, 1588.
— 100 against *Corynebacterium michiganense* and *Xanthomonas vesicatoria* on tomato, 2843.
— — in combination as seed treatment for sesame, 593.
Agrisan against *Phytophthora infestans* on tomato, 2836.
Agrobacterium, 3-ketolactose test for, 1754.
— *tumefaciens* causing plant tumours, 1390.
— —, effect of capsicin on growth and virulence of, 1755.
— —, electron microscopy of, 1756.
— —, hosts of, in relation to *Meloidogyne*, 3321.
— — on apricot, 1381c.
— — on bean, 3320a,b.
— — on cherry, 3158, 3504.
— — on fruit, 3322.
— — on grapevine, 581, 2540, 2541.
— — on raspberry, 2777.
— — on stone fruit, 3157.
— — on tobacco, 1672.
— — on tomato, 1304.
— —, physico-chemical characteristics of, 412.
— —, tumours produced by, 330b.
— — str. on *Datura stramonium*, 1391.
Agropyron, *Bromus* mosaic virus on, causing streak mosaic, 1166.
—, *Claviceps purpurea* on, in U.S.S.R., 1478.
— mosaic virus on *Agropyron repens*, 71, 3475.
— — — on wheat, 71.
—, *Puccinia agropyri* on, resistance to, 95a.
—, — *graminis* ff.sp. *agropyri-repentis* and *secalis* on, in Italy and Yugoslavia, 96b.
—, — *recondita* on, in Portugal, 493.
— streak mosaic in U.S.S.R., *Bromus* mosaic virus (?) causing, 1166.
—, *Xanthomonas translucens* f.sp. *hordei* on, 1911.
— *intermedium*, *Pseudomonas setariae* on, 2746.
— *pectiniforme*, *Puccinia recondita* on, reservoir for, 1487.
— *repens*, *Agropyron* mosaic virus on, in Germany, hosts of, 71; U.S.A., electron microscopy of, 3475.
— —, *Bromus* mosaic virus on, in U.S.A. and U.S.S.R., hosts of, 1167.
— *smithii*, *Phragmidium* ?*mucronatum* on, 91.
— *trichophorum*, *Pseudomonas setariae* on, 2746.
Agrosan against *Tilletia* on wheat, 1840.
— 5W as seed treatment for *Setaria italica*, 2154.
Agrostis, *Sclerotinia homoeocarpa* on, control, 2590d; tolerance of, to fungicides, 2745.
— *palustris*, *Cochliobolus sativus* on, in U.S.A. infection by, 2185.
— —, *Sclerotinia homoeocarpa* on, effect of chloroneb on, 2744.
— —, *Ustilago striiformis* on, control, 2509.
— *pilosula*, *Puccinia coronata* f.sp. *agrostis* on, *Rhamnus purpureus* alternate host of, 3476.
— *tenuis*, *Pythium ultimum* on, effect of Ca nutrition on enzyme activity of, 3138.
— —, *Sclerotinia homoeocarpa* on, effect of chloroneb on, 2744.

Air, *Alternaria* in, viability of, 2969; over apple orchards, diurnal periodicity in, 2968.
—, — *brassicicola* in, over cabbage fields, 3299g.
—, *Aspergillus* in, over rice fields in India, 1865a.
—, *Cercospora* in, over apple orchards, diurnal periodicity in, 2968.
—, *Cladosporium* in, in Wales, 6; over apple orchards, diurnal periodicity in, 2968; over rice fields in India, 1865a.
—, *Cochliobolus miyabeanus* in, over rice fields in India, 1865a; soil as source of, 1865b.
—, *Coprinus* in, over apple orchards, diurnal periodicity in, 2968.
—, *Curvularia* in, over rice fields in India, 1865a; soil as source of, 1865b.
—, *Fomes annosus* in, in Canada, 3604.
—, fungi in, in Pakistan, 3673; diurnal periodicity in, 2968.
—, *Helminthosporium* in, over rice fields in India, 1865a.
—, *Hypoxylon* in, over apple orchards, diurnal periodicity in, 2968.
—, *Penicillium* in, over rice fields in India, 1865a.
—, *Podosphaera leucotricha* in, over orchards, diurnal periodicity in, 2032o, 2355d.
— pollution causing pine needle blight in U.S.A., 925; plant damage, 780, 3700, 3701; effect of, on plants and soil in U.K., 3309; symposium on, 3700.
—, *Puccinia graminis* in, immigration of uredospores of, 5a, b.
—, *Pyricularia oryzae* in, over rice fields in India, 1865a; soil as source of, 1865b.
—, *Sordaria* and *Sporobolomyces* in, over apple orchards, diurnal periodicity in, 2968.
— spora in Wales, 6; detection and transport of, 5a, b; viability of, 2969.
—, *Trichoconis padwickii* and *Ustilaginoidea virens* in, over rice fields in India, 1865a; soil as source of, 1865b.
Aircraft for detecting and locating crop diseases, 392c, d.
— for spraying, 392a, b, 417, 597c, 625, 919c, 920, 1258, 1279, 2934.
Alar, effect of, on apple physiological disorders, 1607.
Alaun in combination against *Peronospora destructor* on onion, 965.
Albisal against cyclamen root rot, 3133.
Albizia julibrissin, *Fusarium oxysporum* f.sp. *perniciosum* on, in U.S.A., 1681.
— *stipulata*, (?)*Uredo* on, control and effect of, 621a.
**Albugo candida* on cauliflower, 2359a.
— — on horse radish, 941.
— — on radish, 2310, 2311, 2898.
— *tragopogonis* on sunflower, 1222.
Alder (*Alnus*) root nodule endophytes, survival of, 3348.
Aldrex T as seed treatment for groundnut, 2587c.
Alfalfa (*Medicago sativa*) mosaic virus, components of, 3142.
— — — on bean, 2503.
— — — on *Capsicum*, 1744e.
— — — on *Cicer arietinum*, 3262, 3280.
— — — on lupin, 2503.
— — — on pea, 3626.
— — — on *Tephrosia vogelii*, 3054.
— — — on *Vernonia anthelmintica*, 3054.
— — —, see also Lucerne mosaic virus.
Algae and fungi, book on, 2038.
Alkyl-dimethylbenzyl ammonium chloride, effect of, on *Pseudomonas syringae* on pear, 2757.
N-alkyl-dithiocarbamates, fungitoxicity and phytotoxicity of, 978c.
o-alkyl-*o*-3-methyl-nitrophenylthiophosphate against plant diseases, 1397.
Alkylphenols, fungicidal action of, 2986.
Allisan against *Botrytis cinerea* on grapevine, 3173.
Allium extracts, effect of, on germination of sclerotia of *Sclerotium cepivorum*, 3648.
— *cepa*, see Onion.
— *porrum*, see Leek.
— *sativum*, see Garlic.
— *schoenoprasum*, see Chives.
Almond (*Prunus amygdalus*), *Armillaria mellea* on, in Italy, 2215.
— diseases in Italy, review of literature on, 2770.
—, *Fusicoccum amygdali* on, in Italy, control, 854, 2770; factors affecting, 3500a; spread of, 3500a; var. react. to, 3500b.
—, *Gloeosporium amygdalinum* on, in Tunisia, 1924; morphology and symptoms of, 855.
— mosaic virus on almond in Italy, 2769.
—, *Phyllactinia corylea* on, in Kashmir, 2759.
—, *Polystigma rubrum* on, in U.S.S.R., 576.
—, *Rosellinia necatrix* on, in Italy, 2215.
—, *Sclerotinia laxa* on, in Italy, 2770.
—, *Stigmina carpophila* on, in Kashmir, 2759; U.S.S.R., 1197.
—, *Taphrina deformans* on, in Italy, 2770; Kashmir, 2759.
—, *Tranzschelia discolor* on, in Kashmir, 2759.
Alnus, see Alder.
Alopecurus pratensis, *Claviceps purpurea* on, 1170.
— —, *Helminthosporium* on, in Germany (E.), 2743.
— —, *Mastigosporium album* on, in Belgium, 2586a.
— —, *Pestalozzina soraueriana* on, in Germany (E.), 2743.
Alsike, see Clover.
Alternaria brassicae, nutritional requirements of, 2997.
— — on *Crambe juncea*, 2437.
— — on Cruciferae, 3030.
— — on *Sinapis alba*, 940.
— *brassicicola* in air over cabbage fields, 3299g.
— —, nutritional requirements of, 2997.
— — on cabbage, 3299h.
— — on Cruciferae, 3030.
— *capsici-annui* on *Capsicum*, 720, 1995.
— *chrysanthemi* on *Chrysanthemum*, 3030.
— *citri* on citrus, 2717, 2718.
— — on orange, 195, 2032l.
— *cucumerina* on cucumber, 397j.
— — on vegetable marrow, 2350.
— *cuscutacidae* on dodder, 3046.
— *dauci*, interaction of near-UV light and temp. on sporulation of, 1017.
— — on carrot, 3612, *3066.
— *dianthi* on carnation, 3464.
— *japonica* on Japanese radish, 1340.
— *kikuchiana* on pear, 1772.
— *longipes* on tobacco, 399b, 885, 2034b.
— *macrospora* on cotton, 1143, 2587d.
— *mali* on apple, 2520, *3060.
— *passiflorae* on passion fruit, 2c.
— *porri* on *Capsicum* and eggplant, 3069.
— — on leek, 85.

[*Alternaria porri*] on onion, see Onion.
— — on tomato, 3069.
— *raphani*, nutritional requirements of, 2997.
— *solani*, effect of ozone on conidiophores and conidia of, 2610; of UV light on sporulation of, 57.
— —, inhibition of, by tobacco mosaic virus-infected sap, 3386.
— — on potato, see Potato.
— — on tomato, see Tomato.
— *tenuis*, associated with *A. triticina* on wheat, 2128; with cotton boll rot, 3122.
— —, effect of C sources on production of chlorosis-inducing agent by, 3721; of makrolin on, 2983; of S–3 on, 2982.
— —, inhibition of, by arasan and thiram, 741; by tobacco mosaic virus-infected sap, 3385.
— — on *Antirrhinum*, 2733.
— — on beet, 1344, 2903.
— — on *Capsicum*, 1370.
— — on *Chrysanthemum viscidi-hirtum*, 2437.
*— — on *Cyamopsis psoraloides*, 3639.
— — on *Hibiscus esculentus*, 2437.
— — on lucerne seed, 1176.
— — on *Phaseolus aureus*, 3639.
*— — on poplar, 2414.
— — on potato, 297, 2812.
— — on *Saussurea candicans*, 2437.
— — on *Sinapis alba*, 940.
— — on soybean, 3639.
— — on tobacco, 3565.
— — on tomato, 1294, 3218, 3342.
— — on wheat, 121, 3087, 3306.
— —, primary luminescence of, 460.
*— *tenuissima* on *Cyamopsis psoraloides*, 1732.
— *tomato*, interaction of near-UV light and temp. on sporulation of, 1017.
— *triticina* on wheat, 122, 793, 2128.
Aluminium, effect of, on Barakovo-black spot on tobacco, 1673.
— chloride, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
— foil, effect of, on *Chrysanthemum* virus B and tomato aspermy virus on *Chrysanthemum*, 1153; lettuce mosaic virus on lettuce, 1360; vectors transmitting turnip yellows virus, 395g.
Alvit 55, see Dieldrin.
Amanita, inhibition of tobacco mosaic virus by extracts from, 3204.
Amaranthaceae, passion fruit woodiness virus can infect, 271.
Amaranthus caudatus, *Iris* mosaic virus on, 2183.
— *tricolor*, *Alternaria* on, inhibition of, by leaf extracts, 2177.
Amaryllis, *Hippeastrum* mosaic virus on, in Japan, 540.
— *vittata*, *Hippeastrum* streak virus on, in Papua and New Guinea, similarity of symptoms of, to tomato spotted wilt virus and transmission of, mechanically, 2495.
Amelanchier alnifolia, *Apiosporina collinsii* on, causing witches' broom, 764.
— *canadensis*, apple chlorotic leaf spot virus can infect, 1601.
Ametryne, effect of, on maize dwarf mosaic virus on maize, 3093.
2-aminobutane against *Botrytis cinerea* on carnation, 1151.
—, toxicity of, to carnation, 1151.
Aminotriazole in combination, effect of, on soil micro-organisms, 2075.
Ammonia as timber preservative, 1334.
Ammonium molybdate as seed treatment for maize, 1520.
— —, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
— polysulphide, toxicity of, to cucumber, 2347.
— sulphate against *Corticium fuciforme* on turf, 1592.
Amo-1618 against phosphorus toxicity in soybean, 2578.
—, inhibition of *Bacillus subtilis* by, 2578.
Amomum subulatum, greater cardamom mosaic streak virus on, detection of, 2106.
**Amphisphaeria pyrina* on pear, 86.
1-s-n-amylisothiouronium N:N-diethyldithiocarbamates, fungitoxicity of, 2041.
**Amyna octo*, *Beauveria* sp. on, in India, 1392.
Anabasin, effect of, on content and composition of proteins of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium dahliae*, 1013; on N metabolism in *F. o.* f.sp. *vasinfectum* and *V. dahliae*, 1012; on pectinase activity and respiration of *V. dahliae*, 1014.
Anagallis arvensis, antifungal compounds from, 744.
Ananas comosus, see Pineapple.
Andrector arcuatus and *A. ruficornis* transmitting cowpea mosaic virus, 2010.
Anemone, *Peronospora* on, control, 3127.
Anethum graveolens, see Dill.
Annona reticulata, see Custard apple.
*— *squamosa*, *Cylindrocladium quinqueseptatum* on, in Brazil, *Calonectria quinqueseptata* perfect state of, 765.
— —, *Pestalotia bicolor* on, in India, symptoms of, 1629.
— —, *Phytophthora nicotianae* var. *parasitica* on, inoculation of economic plants with, 2656.
Annotated list of seed-borne diseases, second edition, 3058.
Anopheles gambiae, *Coelomomyces indicus* on, in U.S.A., 3685b.
— *quadrimaculatus*, *Coelomomyces punctatus* on, in U.S.A., ecology of, 3685a.
Antennopsis gayi on *Isoptera*, 15.
Anthostomaceae on fruit, 1598.
Anthracene oil, toxicity of, to apple, 3302a.
Anthriscus yellows virus on chervil and coriander, 3301l.
— *cerefolium*, see Chervil.
Antiaris africana, blue stain fungi and *Botryodiplodia theobromae* on, 645.
Antibiotics, against plant diseases, 393c, 1404; *Pyricularia oryzae*, 1113y, z.
—, biochemical bases of mechanism of action of, 1403.
—, biosynthesis of, Vol. 1, 995.
—, effect of oils as additives to, 996.
—, production of, by Polyporaceae, 3337.
—, review of, in plant pathology, 742.
Antimucin WBR as seed treatment for pine, 3595b.
**Antirrhinum*, *Alternaria tenuis* on, in Great Britain, symptoms of, 2733.
—, *Cercospora antirrhini* on, 1149.
—, cherry chlorotic-necrotic ring spot virus can infect, 255.
—, citrus variegation virus on, storage of, 2716.
—, *Puccinia antirrhini* on, in U.S.A., world spread of, 3460.
—, *Verticillium* on, susceptibility to, 478.

[*Antirrhinum*] *majus*, *Erysiphe cichoracearum* and *Peronospora antirrhini* on, in Switzerland, 1809.
— —, *Puccinia antirrhini* on, in U.S.A., biology of, 2178; factors affecting growth of, 1581.
Antracol against *Botrytis cinerea* on grapevine, 2791; *Mycosphaerella musicola*, 2220; *Peronospora destructor* on onion, 709; *P. tabacina*, 311, 1283, 2257; *Plasmopara viticola*, 2225, 2791; *Pseudopeziza tracheiphila*, 2225; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
—, properties of residues and safety intervals of, 2380.
— versus maneb, 2220.
— in combination against *Mycosphaerella musicola*, 2220.
Aphanomyces cochlioides in soil, 440, 2902.
— —, morphology of zoospores of, 2085.
— — on barley residues, 440.
— — on beet, 440, 1344.
— *euteiches* in soil, 1427.
— — on pansy, 1746d.
— — on pea, see Pea.
Aphelenchoides bicaudatus parasitizing *Cytosporina acharii* on poplar, 1393.
— *composticola*, fungal hosts of, 2077.
Aphelenchus avenae, effect of, on pine mycorrhiza, 2603; root rotting fungi, 2076; interaction of nematode trapping fungi and, 3029.
Aphids, fungi on, 3240.
— not transmitting papaw mosaic virus, 2223.
— transmitting alfalfa mosaic virus, 2503; barley yellow dwarf virus, 782; bean common mosaic virus, 3305h; beet yellows virus, 1706, 1707, 2900; cowpea virus, 1450; lupin mosaic virus, 2503; maize dwarf mosaic virus, 147; papaw (distortion) ring spot virus, 2223; parsnip yellow fleck virus, 3301l; pea mosaic virus, stem browning str., 2904; plum pox virus, 2761a.
Aphis craccivora transmitting *Astragalus* dwarf virus, 1712; bean yellow mosaic virus, 1460, 3305h; cucumber mosaic virus str., 721; groundnut green rosette virus, 3283; groundnut rosette virus, 704, 960; groundnut veinbanding virus, 706; pea mosaic virus, 2001; *Robinia* mosaic virus, 2568, 3589.
— *euonymi* transmitting *Euonymus europaeus* virus, 3396.
— *fabae* transmitting bean yellow mosaic virus, 1460; beet yellows virus, 2357a; Leguminosae viruses, 2318.
— *gossypii* transmitting citrus tristeza virus, 1551, 3113; cucumber mosaic virus, 721, 1745i; groundnut rosette virus, 960; passion fruit woodiness virus, 270; potato viruses, 2235.
— *medicaginis* transmitting Leguminosae viruses, 2318.
— *nasturtii* transmitting potato viruses, 2235.
— *pomi* as vector of *Erwinia amylovora* on apple, 566.
Apiosporina collinsii on *Amelanchier alnifolia*, 764.
Apis mellifera, *Ascosphaera apis* on, in U.S.A., 2376; factors affecting, 737b.
Apium graveolens, see Celery.
Aplanobacter populi on poplar, see Poplar.
Apparatus [see also Technique], for automatic sizing of mould spores, 2090; collecting soil cores, 2409; controlling crop diseases, manual on, 3327; detecting air spora, 5a, b; cotton wilt, 1136; *Verticillium* on sunflower, 1136; distributing soil fumigants, 2356j; examining mycological specimens, 1041; forecasting *Phytophthora infestans* on potato, 2809; freeze-drying fungi, 2092; heating glasshouse soils, 719; inoculating cereal leaves with *Puccinia coronata*, 2440; potato leaves with *Phytophthora infestans*, 296; isolating epiphytic microflora, 2371; measuring air spora, 5a, b; microscopic examination of fungi growing under defined conditions, 2089; preparing fresh sections of plant tissue, 459; shaking microbial cultures at high controlled temps., 458; sterilizing soil, 3017a; testing diseased seedlings in soil, 2097; time-lapse photomicrography of fungi, 3043; trapping *Erysiphe graminis* in the upper air, 138; trapping *Puccinia*, 3405.
Apple (*Malus pumila*), *Alternaria* on, control, 1377m.
*—, — *mali* on, in India, 3060; cytological study of, 2520.
— bitter pit in N.Z., 1190; Vict., 2522; control, 253, 1190, 1608, 2207, 2522; factors affecting, 1190.
— blotch, virus aetiology of, 1180.
—, *Botrytis* on, control, 1377m.
— bruising during storage, 850.
— chat fruit virus on apple, apple small fruit virus ?related to, 2355f; distinction between witches' broom virus and, 1e.
— chlorotic leaf spot virus on apple, 2194; in Netherlands, 1600; U.S.S.R., 558; elimination of, 2519; new disease in Czechoslovakia resembling, 1177; study on, 1601; transmission of, by sap, 2193; to *Amelanchier canadensis* and *Crataegus*, 1601; herbaceous plants, 2519.
— — — — — — on cherry, 572.
— — — — — — on *Malus*, 395k.
— — — — — — on peach, 2519.
— — — — — — +apple latent viruses on *Malus*, 395k.
—, copper deficiency in, in U.S.S.R., causing wilting, 2521.
— corking disorder, mineral element gradients in, 1605.
—, *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Cytospora capitata* and *C. personata* on, in U.S.S.R., 565; investigation of resistance to, 3153.
—, *Diaporthe perniciosa* on, 3151.
— disease in Czechoslovakia, resemblance of, to apple viruses and transmission of, by seed and sap, 1177.
—, effect of fluorine on, 248.
—, *Erwinia amylovora* on, in England, 1604; Poland, 1919; control, 252, 2751; eradication of, 1919; factors affecting efficacy of *Aphis pomi* as vector of, 566; symptoms of and var. react. to, 1604.
—, factors affecting spray deposits on, 1374q.
— foliar vein flecking, virus aetiology of, 1180.
— frost damage, *Pseudomonas* associated with, 2206.
— fruit russeting, virus aetiology of, 1180.
—, fungi on, list and review of, 247.
—, *Fusarium* on, control, 1377m.
—, *Glomerella cingulata* on, in Norway, 1603; method for predicting, 1073; production of diphenol oxidase by, 3007.

[Apple] green crinkle virus on apple, comparison of healthy and infected fruit of, 3145.
— — mottle virus, new disease in Czechoslovakia resembling, 1177.
—, *Griphosphaeria corticola* on, in Norway, 1603.
—, *Gymnosporangium juniperi-virginianae* on, periodicity in aeciospore release in, 2203.
—, *Hypocrea rufa* on, in Norway, 1603.
— internal browning, effect of alar on, 1607.
—, iron deficiency in, control, 567.
*—, *Karstenula guttulata* on, in U.S.S.R., 86.
— latent virus on apple, 395j; properties, purification and serology of, 3487; tentatively designated B–38, 3487.
— — — on bean and *Chenopodium quinoa*, 3487.
— — — on peach and *Prunus*, 2032p.
— — viruses+chlorotic leaf spot virus on *Malus*, 395k.
— mineral disorders in U.S.S.R., causing wilting, 2521.
— mosaic virus on apple in U.S.S.R., 558; control, 1178; technique for obtaining rootstocks free from, 249.
— — —, rose mosaic virus identical with, 2651.
—, *Mucor* on, control, 1377m.
—, *Naemospora* on, investigation of resistance to, 3153.
— necroses, nonfungal origin of, 394k.
—, *Nectria cinnabarina* on, in Germany, 1181.
—, — *galligena* on, control, 1186, 2200, 2205, 3302a; importance of time of spraying and wound treatment, 2031d; invasion of, 1186.
—, non-accumulation of organic Hg sprays on fruit of, 2032n.
*—, *Peltosphaeria pustulans* on, in U.S.S.R., 86.
—, *Penicillium* on, control, 1377m.
—, — *expansum* on, effect of mineral ions on infection by, 1188.
—, *Pestalotia truncata* on, in Norway, 1603.
—, *Pezicula* on, control, 1375m, 2204; effect of, on yield, 1375m; harvest residues of dichlofluanid on, 2204; losses from, during storage, 850.
—, — *alba* on, 1187; in Norway, 1603; control, 1186, 1375l; effect of mineral ions on infection by, 1188; invasion of, 1186; mycelial growth of, 2031b.
—, — *malicorticis* on, in Norway, 1603; control, 1185, 1186, 1375l, 2205; germination of conidia of, 2031b; invasion of, 1186; mycelial growth of, 2031b; trials of antisporulants against, 564.
*—, *Phialophora malorum* on, in U.S.S.R., 3152.
—, *Physalospora obtusa* on, in U.S.S.R., 1917; source of infection for, 2749.
— physiological disorders, effect of alar on, 1606.
—, *Phytophthora cactorum* on, 1183; var. react. to, 1602.
—, — *nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
— platycarpa dwarf virus on apple, 2194.
*—, *Pleomassaria mali* on, in U.S.S.R., 86.
—, *Pleospora herbarum* on, control, 2752.
—, *Podosphaera leucotricha* on, in Armenian S.S.R., 1182; U.S.S.R., 251, 2192; biology of, 2192, 2748; C.M.I. description of, 1035b; control, 20, 1182, 1375k, 1401, 1918, 2192, 2198, 2199, 2748, 3692, 3693; factors affecting, 251, 252, 1918; incidence of, 2192.
[Apple, *Podosphaera leucotricha*] on, *Cicinnobolus cesatii* parasitizing, 563.
— proliferation virus on apple, symptoms of, 1178.
—, *Pseudolachnea elegans* on, in U.S.S.R., 1179.
— red lenticel disease, geographical distribution of, (?) not caused by fungi, 1189.
— replant disease, control, 1599.
—, *Rhizoctonia* on, control, 1377m.
— ring pattern, virus aetiology of, 1180.
— — spot virus, new disease in Czechoslovakia resembling, 1177.
— root rot, 1183.
—, *Rosellinia necatrix* on, inhibition of, by aureofungin, 3154.
— rosette in U.S.S.R., due to virus and not Zn deficiency, 5650.
— 'rough bark disease', non-transmission of, by grafting, 3155.
— — skin disease in Europe, 2193.
— rubbery wood virus on apple in Austria, latent infection and spread of, 559; technique for obtaining rootstocks free from, 249.
— russet ring disease in England, viruses causing, 2193.
— russeting, avoidance of, 2753; causes of, 393e; during storage, 850.
*— scaly bark virus on apple in Czechoslovakia, 1177.
—, *Sclerotinia fructicola* on, factors affecting sporulation of, 2201.
—, — *fructigena* on, antifungal compounds in fruit of, 2202; losses from during storage, 850; pectin methyl-*trans* eliminase in rotting by, 3149.
—, — *mali* on, macroconidial formation by, 3150.
— skin browning, fungicides causing, 2031.
— small fruit virus ? related to apple chat fruit virus, 2355f.
— Spy decline virus on apple, 2194; elimination of, 2519.
— — epinasty virus on apple, 2194; study on, 1601.
— star crack disease in England, viruses causing, 2193.
— stem pitting virus on apple, 2194; elimination of, 2519; study on, 1601.
—, *Stemphylium consortiale* on, control, 2752.
— storage disorders, effect of controlled atmospheres on, 1005, 1605; review of, 2754.
— — scald, effect of alar on, 1607.
—, toxicity of dithiocarbamate to, 393e.
— tree pit control, 2207.
—, *Trichoseptoria fructigena* on, control, 2205.
—, *Trichothecium* on, control, 1377m.
—, *Venturia inaequalis* on, in Asia, 849; Germany (E.), 2029; N. Ireland, 1375n; Poland, 2956; U.S.S.R., 561, 3146; control, 4a, 250, 396, 397k, 1375k, n, 1396, 1397, 1398, 2197, 2198, 2204, 3490, 3491, 3492; effect of urea on, 2195, 2355c; factors affecting, 3146, 3490; factors affecting formation of ascospores of, 2031a; forecasting of, 561, 1808, 3489; genetics of, 3488; harvest residues of dichlofluanid on, 2204; incidence of, 2029; incubation period in relation to temp., 2196; inhibition of CO_2 fixation and protein synthesis in leaves of, by, 3148; polyphenols in relation to resistance to, 3666e; report on, 2956; routine and post-infection sprays against, 250; sources of infection for, 2355c; spore dispersal of, 3146; spray warning for,

1916; susceptibility to, 3147; var. react. to, 849, 3147.
Apple], *Verticillium* on, 478.
—, — *alboatrum* on, 2750; factors affecting, 1184.
— virus diseases, introduction of virus-free vars. into N.Z., 2191; testing for, 246.
— — on *Chenopodium amaranticolor* and *C. quinoa*, 469.
— water core, effect of alar on, 1607.
— witches' broom virus on apple, distinction between chat fruit virus and, 1e; indicators for, 2194.
Apricot (*Prunus armeniaca*), *Agrobacterium tumefaciens* on, in Venezuela, 1381c.
— 'apoplexy' in Yugoslavia, 1204; study on wood tissue of, 1205.
—, fungi on, list and review of, 247.
—, *Gnomonia erythrostoma* on, in Yugoslavia, inhibition of, by *Trichothecium roseum*, 1619.
—, peach mosaic+apricot ring pox viruses on, no synergism in, 853.
—, — yellow bud mosaic virus on, transmission of, by vectors, 571.
—, plum pox virus can infect, 1196.
—, — — — on, in *Greece, 3059a; Switzerland, 1922, 2761b; control, 1922; symptoms of, 2761b, 3059a.
—, Polyporaceae on, not associated with premature dieback, 1205.
—, prune dwarf virus on, causing gummosis, 1618.
—, *Rhizopus stolonifer* on, 3694.
— ring pox virus on apricot in U.S.A., comparison of plum pox virus with, 2210a; var. react. to, 401c.
— — — +peach mosaic viruses on apricot, no synergism in, 853.
—, *Sclerotinia laxa* on, var. react. to, 1924.
— stem pitting, var. react. to, 2764.
—, *Venturia cerasi* on, in Rumania, 577.
— virus diseases, testing for, 246.
— xylem aberration, transmission of, by budding, to *Prunus virginiana* var. *demissa*, 851.
Arabis mosaic virus in Netherlands, 1059; effect of blue light on, 2357f; hosts of, 3508; non-infection of raspberry by, 3508; transmission of, by nematodes, 1059, 1060; seed, 3508; vectors, 69.
— — — on celery, 3299d.
— — — on cucumber, 1193.
— — — on grapevine, 583b.
— — — on horse-radish, 1704.
— — — on lettuce, 712.
— — — on *Nicotiana clevelandii*, 2641.
— — — on rhubarb, 3294.
— — — on strawberry, 859.
— *hirsuta*, cauliflower mosaic virus on, 2308.
— *pterosperma*, *Septoria arabidis* on, in India, 3623.
Arachis hypogaea, see Groundnut.
Arasan against *Pythium ultimum* on parsley, 714.
— as seed treatment for sorghum, 3098.
—, inhibition of *Alternaria tenuis* by, 741.
— 42–S as seed treatment for rice, 1546.
— 75 as seed treatment for *Cicer arietinum*, 3281.
— —, resistance of *Pyricularia oryzae* to, 3105.
Araucaria araucana, *Caeoma sanctae-crucis* on, in Argentina, alternate host of, 1981.
— *cunninghamii*, *Botryodiplodia theobromae* on, in Malaysia, ?synonymous with *Diplodia natalensis*, 1441.
Araucariaceae, *Aecidium* and *Caeoma* on, 2302.
Arbutin, metabolism of, by pear fungi, 2393.
Arcangeliella asterosperma on oak, forming mycorrhiza, 3710.
Arceuthobium americanum on pine and spruce, *Glomerella cingulata* parasitizing, 337.
Arctium lappa, *Erysiphe cichoracearum* on, overwintering of cleistocarps of, 982.
Areca palm (*Areca catechu*) yellow leaf virus on areca palm, 1640.
Aretan against *Leptosphaeria salvinii* on rice, 3336.
—, inhibition of *Trichometasphaeria turcica* on maize by, 508.
Armillaria mellea control, 3696.
— —, effect of ethanol on, 1773, 1774, 3722.
— — in soil, 2072, 3019, 3020.
— —, metabolism and nutrition of, in relation to growth and rhizomorph formation, 2394.
— — on *Acer saccharum*, 2566.
— — on almond, 2215.
— — on carnation, 2734.
— — on citrus, 1886.
— — on Coniferae, 1315.
— — on *Liriodendron tulipifera*, 1976.
*— — on *Macadamia*, 2588a.
— — on oil palm, 595.
— — on pine, 90, 2958a.
— — on spruce, 2882b.
— — on trees, 2564.
Armoracia rusticana, see Horse-radish.
Arrhenatherum elatius and *A. erianthum*, *Puccinia coronata* f.sp. *avenae* on, resistance to, 2512.
— *splendens*, *Puccinia recondita* on, reservoir for, 1487.
Arthrobotrys arthrobotryoides, interaction of, with soil micro-organisms, 441.
— — on cucumber, 2581.
— *cladodes* var. *macroides*, interaction of, with soil micro-organisms, 441.
— *conoides* in soil, 3028.
— *musiformis* and *A. oligospora*, interaction of, with soil micro-organisms, 441.
Artichoke (*Cynara scolymus*) atrophy, control and factors affecting, 2354.
— latent virus, effect of supplements on infectivity of, 2102.
— mottled crinkle virus on artichoke, particles of, 3296, 3397.
*—, *Mycosphaerella ligulicola* on, 1154.
— *Verticillium dahliae* on, in France, hosts of, 3297.
Artocarpus communis, see Breadfruit.
Arylhydrazono-isoxazolones, fungicidal activity of, 3692.
2-arylimino-3-aryl-4-thiazolidones, fungicidal activity of, 3691.
1-arylthiosemicarbazides, fungicidal activity of, 1376f.
Ascochyta aquilegiae on Ranunculaceae, 539.
— *brachypodii* on *Phalaris arundinacea*, 2743.
— *cannae* on *Canna*, 2732.
— *chrysanthemi* on *Chrysanthemum*, 24.
— *delphinii* on *Calendula*, 2732.
— *desmazieri* on *Lolium multiflorum*, 1168a.
*— *fabae* on broad bean, 730c, 1595.
— *fagopyri*, physiology of, 438.
*— *gossypii* on cotton, 2a.
— *hortorum* on tomato, 1374d.
— *imperfecta*, see *Phoma herbarum* var. *medicaginis*.
— *laurina* on *Laurus nobilis*, 2501.
— *lycopersici*, synonymy of, 1303.

[*Ascochyta*] *phaseolorum* on *Lablab niger*, 2032b.
— —, physiology of, 438.
— *pinodella* on pea, 1721, 2320.
— *pinodes*, see *Mycosphaerella pinodes*.
— *pisi* on pea, 24, 2320.
— —, physiology of, 438
— *rabiei* on *Cicer arietinum*, see *Cicer arietinum*.
— —, physiology of, 438
— *solani-tuberosi*, physiology of, 438.
— *spinaciae* on spinach, 3261.
— *trifolii*, physiology of, 438.
Ascomycetes on timber, 3247.
Ascosphaera apis on bees, 737b, *2376.
Ascu as timber preservative, 678.
Ash (*Fraxinus*), *Colletotrichum dematium* on, biology, morphology and transmission of, 325.
— dieback ?induced by *Cytophoma pruinosa* and *Fusicoccum*, 3578.
—, *Fomes ellisianus* and *F. fraxinophilus* on, in N. America, cultural study on, 647.
*—, *Fusicladium fraxini* on, in Scotland, 3219.
—, *Macrophoma fraxini*, *Phomopsis samararum*, *Phyllosticta fraxini*, and *Pleospora herbarum* on, biology, morphology, and transmission of, 325.
— yellows-type virus on ash in U.S.A., symptoms and transmission of, by dodder, 2590i.
Asparagus, fungi on, 1358.
—, *Fusarium oxysporum* on, in N.S.W., 2032h.
—, — — f.sp. *asparagi* on, in Netherlands, causing 'foot disease', 1a.
—, *Gibberella fujikuroi* var. *subglutinans* on, in N.S.W., 2032h.
—, tobacco mosaic virus str. Y–TAMV on, 3385.
—, *Xanthomonas* on, pathogenicity to, 1358.
Aspen (*Populus* spp.) [see also Poplar] canker in U.S.A., *Ceratocystis* spp. associated with, 2271a.
—, *Ceratocystis populina* on, in U.S.A., description of, 1687.
*—, — *tremulo-aurea* on, in Europe, 646.
—, *Diplodia tumefaciens* on, in Canada, 2562d.
—, *Fomes igniarius* on, nomenclature of, 914.
*—, — *subroseus* on, in Canada, 2562f.
—, — *tremulae* on, in U.S.S.R., factors affecting resistance to, 3226; gas conditions in trunks in relation to, 3586; nomenclature of, 914; resistance to, 1688.
—, fungi on, inhibition of *Fomes tremulae* by, 2279.
—, *Godronia fuliginosa* on, 3588.
—, *Hypoxylon pruinatum* on, in Canada, 643d; development of, 3587; dissemination of ascospores of, 659; severity of, 2852.
— mycorrhiza in U.S.S.R., 1001.
—, *Nectria galligena* on, establishment and penetration of, 1978.
—, *Venturia tremulae* on, biology and overwintering of, 331.
Aspergillic acid, inhibition of groundnut by, 2015.
Aspergillus candidus in rhizosphere of *Hibiscus esculentus*, 219.
— *flavus*, antagonism of to *Corticium solani*, 27.
— —, cleistothecia and sclerotia production in, 48.
— —, hosts of, 1467.
— — in soil, 58.
— — on cotton, 1574, 1575.
— — on groundnut, see Groundnut.
— — on maize, 2476, 3436.
[*Aspergillus flavus*] on rice, stored, 520.
— *fumigatus*, antagonism of mycolytic soil bacteria to, 2074.
— — in rhizosphere of *Hibiscus cannabinus*, 219.
*— — on orange, 2719.
— — on spruce, 1326.
— — on tomato seed, 1302.
— *glaucus* on beet, stored, 2903.
— — on tobacco, 3211.
— —, strs. of, 1038.
— *melleus* in rhizosphere of cotton, 3447.
— — in soil, 3447.
*— *micro-virido-citrinus* on groundnut, 2014.
— *niger*, effect of filtrates of, on infectivity of potato virus X ring spot str., 470b; radish mosaic virus, 471.
— —, electron microscopy of, 3739.
— —, factors affecting cleistothecia and sclerotia production in, 48.
— —, genetic effects of ferbam on, 3724.
— — in rhizosphere of *Hibiscus esculentus*, 219.
— —, metabolism of NAA by, 393c.
— — on beet, stored, 2903.
— — on cotton, 1575.
— — on cucumber, 2581.
— — on groundnut, see Groundnut.
— — on spruce, 1326.
— — on tobacco, 3211.
— — on vegetables, 2893.
— —, primary luminescence of, 460.
— —, production of pectolytic enzymes by, 3719.
— —, toxicity of lead to, 3695; 1-phenylthiosemicarbazide to, 2984; phosphoric acid derivatives to, 1763.
— *ochraceus* in rhizosphere of *Hibiscus esculentus*, 219.
— — on beet, stored, 2903.
— — on maize, 1524.
— —, transformation of steroids by spores of, 2065.
— *oryzae*, longevity of conidia of, in storage, 2066.
— —, primary luminescence of, 460.
— —, technique for storage of, 2093.
— *paradoxus*, factors affecting cleistothecia and sclerotia production in, 48.
— *sclerotiorum*, factors affecting cleistothecia and sclerotia production in, 48.
— *tamarii* on *Ceratitis capitata*, 2040.
— *terreus*, antagonism of mycolytic soil bacteria to, 2074; of, to *Corticium solani*, 27.
— — in rhizosphere of cotton, 3447; of *Hibiscus esculentus*, 219.
— — in soil, 3447.
— —, primary luminescence of, 460.
— *terricola*, technique for long-term storage of, 2093.
— *trifolii*, physiology of, 438.
— *ustus* in rhizosphere of *Hibiscus esculentus*, 219.
— *versicolor* on groundnut, 3645.
Aspor against *Peronospora parasitica* on cabbage, 2896; *Phytophthora infestans* on potato, 1236; *Polystigma rubrum* on plum, 2528; *Pseudoperonospora cubensis* on cucumber, 970; *Sporidesmium sicynum* on fig, 1213.
— in combination against *Fabraea maculata* on pear and quince, 3495.
— blue against *Peronospora tabacina*, 1280.
Aster (*Callistephus chinensis*), *Coleosporium asterum* on, in U.S.A., 3235.

Aster], *Fusarium* on, fungicidal properties of phytoncides of, 1148.
—, — *oxysporum* f.sp. *callistephi* on, in Iran, 3063b.
—, tobacco rattle virus on, identification and symptoms of, 2494.
— yellows virus, interaction between strs. and vectors of, 474.
— — — in *Macrosteles fascifrons*, 1797.
— — — on aster, effect of chlortetracycline on, 3669b.
— — — on *Chrysanthemum carinatum*, 3669b.
— — — on *Gladiolus*, 2366.
— — — on *Nicotiana rustica* var. *humulis*, 473.
— — — on *Petunia*, 657.
— — — on sunflower, 1222.
— — —, *Rauwolfia serpentina* 'bunchy top' virus symptoms resembling, 2799.
— — —, California, on celery, 3611.
Asterophora lycoperdoides and *A. parasitica*, effect of organic N: carbohydrate ratio on, 36.
Astragalus dwarf virus, hosts and properties of, 1712.
*— *sinicus*, *Curvularia trifolii* on, 1175.
Atkinsonella hypoxylon on *Danthonia spicata*, 233.
Atrazine as soil disinfectant, 3093.
—, effect of, on *Gibberella zeae*, 2044; maize dwarf mosaic virus, 3093; *Sclerotium rolfsii* and *Trichoderma viride*, 430.
Atriplex canescens, effect of hydrogen peroxide on seeds of, 1980.
Atropa belladonna mottle virus on *A. belladonna* in Bulgaria, 2649; Germany, 394e, 2649; hosts of, 394e; properties of, 394e, 2649; transmission of, 2649.
Aubretia deltoidea, *Peronospora aubretiae* on, in Switzerland, 1809.
Aureobasidium pullulans, effect of ethanol produced by, on growth of *Armillaria mellea*, 1773, 2072; of pH and temp. on growth of, 361.
— —, melanins of, 3351.
— — on barley, 2468.
— — on *Pseudotsuga menziesii*, 3240.
— — on *Tilia europaea*, 662.
— — on timber, 1700, 2285, 3610.
— —, studies on, 3377.
Aureofungin against *Alternaria tenuis* on tomato, 3342; *Cochliobolus miyabeanus* and *C. nodulosus*, 3341; *Diplodia natalensis* on mango, 3342; *Exobasidium vexans*, 621c; *Phytophthora citrophthora* on lime, 1885; *Trichometasphaeria turcica*, 3341.
—, inhibition of *Rosellinia necatrix* on apple by, 3154.
— in combination as seed treatment for rice, 3341.
Aureomycin against mulberry dwarf virus on mulberry, 656.
—, effect of, on *Xanthomonas campestris*, 1338.
Auriculariales in U.S.S.R., key to, 454.
Avena, see Oats.
Avocado pear (*Persea americana*), *Fusarium equiseti* on, in Israel, 1466.
— —, *Glomerella cingulata* on, in Mexico, factors affecting incidence of and *Sphaceloma perseae* associated with, 3167.
— —, *Phytophthora cinnamomi* on, control, 863.
Axonopus affinis, *Axonopus* chlorotic streak virus on, in New Guinea, transmission of, by vectors, 845.
[*Axonopus affinis*] yellow streak virus in Papua and New Guinea, hosts and transmission of, 400.
6-azacystone, effect of, on *Botrytis cinerea*, *Colletotrichum lindemuthianum*, and *Glomerella cingulata*, 1400.
**Azadirachta indica*, *Pseudomonas azadirachtae* on, in India, 326.
6-azauracil, chemotherapeutic effect of, on *Cladosporium cucumerinum* on cucumber, 3666p.
—, effect of, on *Botrytis cinerea*, *Colletotrichum lindemuthianum*, and *Glomerella cingulata*, 1400; on RNA biosynthesis, 3690.

B–500 against *Botrytis cinerea* on grapevine, 3522.
Bacillin, effect of, on *Fomes tremulae*, 2388.
Bacillus cereus in soil, 441.
— — var. *mycoides*, effect of culture filtrate of, on sclerotia of *Colletotrichum coccodes* and *Mycosphaerella ligulicola*, 3698.
— *licheniformis*, effect of, on growth and sclerotium formation of fungi, 3363.
— *megaterium* in soil, 441.
— *mesentericus* in soil, 441, 2075.
— *polymyxa*, separation of enzymes in culture filtrates of, 2372.
— *pumilus* on cotton, 3456.
— *subtilis*, antagonism of, to *Corticium solani*, 27; *Streptomyces scabies*, 2553.
— —, effect of filtrates of, on radish mosaic virus on Indian mustard, 471; of, on growth and sclerotium formation by fungi, 3363.
— — in soil, 441, 1428.
— —, inhibition of, by amo-1618, 2578.
— — on cotton, 1575.
— — on groundnut, 2017.
— —, technique for storage of, 2093.
Bacteria, a guide to the identification of the genera of, 2nd edition, 11.
—, effect of sealed and unsealed containers on longevity of, 55.
—, international code of nomenclature of, reprint of English edition, 991.
— on plants, 12.
—, plant pathogenic, antagonism of *Streptomyces annulatus* to, 421; classification of, 1388.
Bacterium S–9, antibiotic effect of, on plant pathogenic bacteria, 2330.
Banana (*Musa* spp.), bacterium on, association of symptoms of, with insect, 2222.
—, *Botryodiplodia* on roots of, 3512.
—, — *theobromae* on, effect of basofix and mastisan on, 2782.
— bunchy top virus on banana in Hong Kong, 3668d; N.S.W. and W. Samoa, 266.
—, *Colletotrichum musae* on, in India, 3061; effect of basofix and mastisan on, 2782; of 2-deoxy-D-glucose on respiration of, 1415; growth of, on various C sources, 1416; symptoms of, 3061.
—, *Deightoniella torulosa* on, in Hawaii, symptoms of, 2783.
*— disease in the Philippines, symptoms of and (?)transmission of, by vectors, 267.
— diseases in Colombia, 1932; the Pacific area, 3165; economics of spraying against from air and ground, 392.
—, *Fusarium* on roots of, 3512.
—, — *oxysporum* f.sp. *cubense* on, in Colombia

1932; comparison of cell wall composition in resistant and susceptible plants, 3166.
[Banana, *Fusarium*] *roseum* 'Gibbosum' on, in C. America, symptoms of, 2221.
—, *Gibberella fujikuroi* on, effect of basofix and mastisan on, 2782.
—, *Glomerella cingulata* on, effect of 2-deoxy-D-glucose on respiration of, 1415; growth of, on various C sources, 1416.
—, *Mycosphaerella musicola* on, in Colombia, 1932, 2220; Costa Rica, Honduras and Panama, 1212; Hong Kong, 3668d; control, 1932, 2220; factors affecting perithecia and sporodochia production by, 1212; variation of fungicide deposits on, from spraying apparatus, 2960e.
—, *Nigrospora musae* on, in N.S.W., 2032r.
—, *Pseudomonas solanacearum* on, in Colombia, 2535; *Peru, 1933; *Colletotrichum musae* associated with, 2535; control, 3306.
—, *Rhizoctonia* on roots of, 3512.
—, *Verticillium theobromae* on, effect of basofix and mastisan on, 2782.
— virus diseases in the Pacific area, review of, 3165.
—, *Xanthomonas musacearum* can infect, 1389.
Barberry (*Berberis*), *Microsphaera berberidis* on, in Switzerland, 1809.
—, *Puccinia arrhenatheri* on, in Austria, causing witches' broom, 2496.
—, — *graminis* on, in Austria, 2496; Denmark, 2962; Rumania, 1377a; as source of infection for cereals, 2962; intermediate host of, 2496; physiologic races of, 1377a; prevalence of physiologic races of, 3404.
Barley (*Hordeum*), *Alternaria* on, 2468.
—, *Aphanomyces cochlioides* on residues of, measurement of sporulation of, 440.
—, *Aureobasidium pullulans* on, 2468.
—, *Bromus* mosaic virus on, biochemical study on RNA synthesis in, 978f; effect of heat on, 2584b; electron microscopy of, 135; particle form and concentration of, 135; technique for measuring synthesis in, 1049.
—, *Calonectria nivalis* on, in the Pacific Northwest, ecology and (?)significance of perithecia of, 2681.
—, *Cercosporella herpotrichoides* on, effect of furidazole and thiabendazole on, 1819; of temp. on, 783.
—, *Cladosporium* on, 2468.
—, *Cochliobolus sativus* on, 2690; in Colombia, 1849; control, 1849; effect of amino acids on pathogenicity of, 1507; of UV light on resistance to, 2466; factors affecting, 2143; resistance to, 2467; var. react. to, 1506.
—, *Colletotrichum graminicola* on, in India, 3099; effect of temp. on ability to form appressoria and penetrate leaves of, 140.
—, damping-off of, effect of chlorcholinchloride on, 1497.
— diseases, in Argentina, 2117; review of, 100; severity of, 2117; symptoms of, 1473.
—, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
—, *Erysiphe graminis* on, in Colombia, 1849; Denmark, 499; England, 2585h, 2689; Europe, 2688; Germany (E.), 2029; Ireland, Japan, and N. America, 2689; U.K., 2688; apparatus for trapping conidia and urediospores of, in upper air, 138; control, 1849; cytological and histological aspects of host-parasite relationships of, 1850; effect of furidazole and thiabendazole on, 1819; of gamma rays on, 500; of growth substances on stomatal opening, 1100; of host cells on growth of, 797; of, on growth regulators in, 2140; of, on isozymes, 2465; electron microscopy of, 1099, 1502; factors affecting, 1503, 1820; genetics of, 1504, 2688, 2689; histochemical changes in epidermal cell wall by, 3429; importance of perithecia, 499; incidence of, 2029; intensity of, 3300a; legislation against in Denmark, 2684; physiologic races of, 2585g, 2688; primary appressoria formation in, 2141; relationship between weather conditions, incidence, and yield, 139; resistance to, 2588g; var. react. to, 2585h.
[Barley] foot rot, 1094.
— frost damage, review of, 100.
—, fungi on, resistance to, 798.
—, *Fusarium* on residues of, 440.
—, — *culmorum* on, factors affecting, 2143.
—, — *oxysporum* on roots of, competitive colonization of, with sterile dark fungi, 1022b.
—, — *poae* on, symptoms of, 2321.
—, — *roseum* on, in France, damage caused by and effect of preceding crop on incidence of, 99.
—, *Helminthosporium* on, control, 2446.
— leaf diseases, control, 1375h.
—, maize virus can infect, 150.
—, *Ophiobolus graminis* on, effect of, on, 3408; incidence and infection of, 1375e.
—, *Poa annua* virus on, resemblance of symptoms of, to aster yellows group viruses, 2510.
—, *Pseudomonas rubrilineans* can infect, 804.
—, *Puccinia graminis* on, in Canada, 3075; India, 111, 795; formation of appressoria by, 103; germination of uredospores of, on epidermis of, 103; physiologic races of, 111, 795; prevalence of physiologic races of, 3404; var. react. to, 795.
—, — *hordei* on, in Colombia, 1849; England, 2585h; U.S.S.R., 1815; chlorophyll and total N in, 136; control, 1849, 2686; legislation against in Denmark, 2684; var. react. to, 2585h.
—, — *recondita* on, in India, 111; effect of furidazole and thiabendazole on, 1819.
—, — *striiformis* on, in Austria, 2030; Czechoslovakia, 2463; England, 2585h; India, 111, 795; incidence of, 2030; legislation against in Denmark, 2684; physiologic races of, 111, 795, 2463; severity of, 2685; var. react. to, 795, 2463, 2585h, 2685h.
—, *Pyrenophora graminea* on, control, 98.
—, — *teres* on, 2690; in Colombia, 1849; control, 1849; effect of fertilizers on resistance to, 1101; of UV light on resistance to, 2466; genetics of, 2142; nature of resistance to, 1505; resistance to and virulence of, 2467; var. react. to, 1506.
—, *Pythium* on residues of, 440.
—, — *aphanidermatum* on, pathogenicity of, 2442.
—, — *splendens* on, effect of seed treatment on and pathogenicity of, 2442.
—, *Rhyncosporium secalis* on, in Colombia, 1849; England, 2585h; assessing infection by, 1375i.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
—, sterile dark fungi on roots of, colonization

and persistence of, 1022a; competitive ability of, 1022b.
[Barley] stripe mosaic virus on barley in Rumania, 2135; *Yugoslavia, 3427; detection of, 2106; effect of time of infection on yield, 1499; electron microscopy of, 1498; hosts of, 3427; immunological characteristics of, 501; non-transmission of, by seed, 1499; transmission of, by seed, 2106; var. react. to, 2106, 2135.
—, *Tilletia pancicii* on, factors affecting viability of spores of, 1842.
—, *Typhula incarnata* on, effect of quintozene on, 2691.
—, *Uromyces viennot-bourginii* on, in Israel, 137.
—, Ustilaginales on, in Germany, 1479.
—, *Ustilago hordei* on, control, 1377c; genetics of resistance to, 2464; N requirement of, 1500; testing fungicides against, 1853.
—, — *nuda* on, in Bulgaria, 2138; Germany (E.), 2029; Poland, 3406; albino str. of, 2138; artificial inoculation of, 132a, 2443; control, 133, 1377c, 1480, 1852, 2139, 2446, 3091, 3406; distribution of, 796a; effect of irradiation of seed on resistance to, 1501; quintozene and quintozene-thiram on, 2134; volatile substances on, 134; on anatomical properties of, 796b; 1851; on seedling vigour and seed size, 2687; incidence of, 2029, 3406; localization of, 3428; method for assessing susceptibility to, 2137; penetration of, 3428; physiologic races of, 796a, b; relationship between resistance to and no. of germinating spores on stigma, 2136; resistance of, to anaerobic media, 483; technique for determining vitality of seed of, 2444; var. react. to, 796a, 2443; virulence of, 132b; vitavax ineffective against, 2445.
—, *Verticillium* on, resistance to, 478.
— viruses A1 and B1 on barley in Rumania, 2135.
—, wheat stunt virus on, incidence of, 1474.
— yellow dwarf virus on barley, effect of aphid nos. and growth stage on determination of tolerance to, 95; effect of, on, 1847; factors affecting respiration in, 2462; genetics of resistance to, 3665b; movement of, 3090; serological differences between isolates of, 1078; tolerance to, 3300c; transmission of, by vectors, 2961, 3090.
— — — — on cereals, 782, 2659.
— — — — on Gramineae, 232.
— — — — on *Lolium perenne*, 3300c.
— — — — on oats, see Oats.
— — — — on wheat, 95, 1079, 3300c.
— — — — strs., transmission of, by vectors, 394e.
— — mosaic virus on barley in Europe and Japan, susceptibility to, 1848.
— straw, inhibition of *Fusarium solani* f.sp. *phaseoli* by, 2909.
Basfungin against *Botrytis cinerea* on strawberry, 3164.
Basidiomycetes II (Agaricales), 3rd revised edition of German book on, 43.
—, effect of calcium cyanamide on development of, 3331.
—, ergosterol content of, 2387.
—, mycorrhizal, growth and spore germination of, 22; inhibiting *Corticium solani* on pine, 1411.
— on timber, 3249.
—, toxicity of D735 and F427 to, 739; of oxathiin fungicides to, 978b.
Basidiospores, studies on germinative pore of, 446.
Basofix, effect of, on fungi on banana, 2782.
Bathycoelia thalassina associated with boron deficiency in cacao, 1472.
Bayer 5660 as seed treatment for cereals, 1077.
— — versus panogen metox, 1077.
*Bean, Broad (*Vicia faba*), *Ascochyta fabae* on, in Denmark, 730c; control, 1595.
—, —, bean leaf roll virus on, in (?)Iran, 3262; Lithuania, 2317.
—, —, — yellow mosaic virus on, in Bulgaria, 1460; Iran, 3262.
—, —, *Botrytis cinerea* on, effect of pollen grains on growth of, 3350; resistance to, 3666q.
—, —, — *fabae* on, in *Denmark, 730c; Iran, 3262; control, 1399, 3692; effect of benzyladenine on, 1726; of decenylsuccinic acid on, 3632; of different N sources on sugar and amino acids leached from leaves of, 1374k; of fungicide vapours on, 419; resistance to, 3666q; var. react. to, 3275.
—, —, clover enation (?)virus on, symptoms of, 2515.
—, —, *Corticium solani* on, 126; control, 3633.
—, —, cucumber mosaic virus on, formation of local necrotic lesions of, on chlorophyll deficient leaves of, 2638.
—, —, mottle virus, assembly and properties of, 3278.
—, —, pea enation mosaic virus on, characteristics, electron microscopy and purification of, 3263.
—, —, — mosaic virus, stem browning str. can infect, 2904.
—, —, stain virus on broad bean, serology and properties of, 1725.
—, —, tobacco mosaic virus str. Y–TAMV on, 3385.
—, —, true mosaic virus, see Echtes Ackerbohnemosaic virus.
—, —, *Uromyces viciae-fabae* on, physiology of, 956, 3270, 3720; var. react. to, 3275.
—, —, virus diseases, var. react. to, 3275.
Bean, French and Runner (*Phaseolus* spp.), *Agrobacterium tumefaciens* on, effect of growth promoting factor from, on crown-gall tumour growth, 3320a, b.
—, alfalfa mosaic virus on, differentiation of strs. of, 2503.
—, apple latent virus on, 3487.
— as indicator for lucerne mosaic virus, 2514.
—, bacterium S–9 on, antibiotic effect of, on plant pathogenic bacteria, 2330.
—, beet curly top virus on, alteration in auxin content caused by, 2650.
—, *Cercospora canescens* and *C. cruenta* on, in Venezuela, 1381k.
—, citrus infectious variegation virus can infect, 189; transmission of mechanically, 2715.
—, *Cochliobolus carbonum* on, physiology of resistance to, 2333.
*—, — *sativus* on, in Canada, oats as source of infection, 3268.
—, — *victoriae* on, in U.S.A., resemblance of symptoms of to *C. sativus* on bean in Canada, 3268.
—, *Colletotrichum lindemuthianum* on, in Brazil, 954; Malawi, 1747a; Venezuela, 1381k;

physiologic races of, 954; resistance to, 3666q; var. react. to, 954.
[Bean] common mosaic virus in Turkey, transmission of, by vectors, 1796.
— — — —, resemblance of symptoms of passion fruit woodiness virus to, 271.
— — — — on bean in Iran, 3262; U.S.S.R., 696; Yugoslavia, 1349; control, 696; distribution, hosts and incidence of, 1349; transmission of, 1349; by sap and seed, 696; by vectors, 3305h; var. react. to, 696.
— — — — on Leguminosae, 2317, 2318.
—, *Corticium solani* on, in Venezuela, 1381k; effect of *Aphelenchus avenae* on pathogenic activity and survival of, 2076; of phytoalexins produced by on, 955; mode of penetration by, 2591; var. react. to, 2914.
—, *Corynebacterium flaccumfaciens* var. *violaceum* on, description of, 2325; similarity of to *C. flaccumfaciens* and *C. f.* var. *aurantiacum*, 2326.
—, cowpea chlorotic mottle virus on, specific infectivity of, 3392.
— diseases in Venezuela, 1381k; symptoms and transmission of, 3613.
—, *Dolichos* enation mosaic virus on, electron microscope study on, 1459.
—, effect of exudates of, on growth of fungi, 755; of fungi on respiration of, 751; of ozone on, 373; peroxyacetyl nitrate on, 3700e; of sap of, on *Caragana arborescens* virus disease, 1975.
—, *Erysiphe polygoni* on, control, 1401; effect of nitrophenols on, 2598.
—, — — +southern bean mosaic virus on, 3266; interactions between, 3266.
—, *Fusarium* on, in U.S.A., 3267; breeding against, 372.
—, — *oxysporum* f.sp. *phaseoli* on, in *Brazil, 953; Colombia, 2323b; *Costa Rica, 1723; description and symptoms of, 1723; var. react. to, 1723.
—, — *roseum* f.sp. *phaseoli* on, in Colombia, 2323a, b; new form of, 2323a.
—, — *solani* f.sp. *phaseoli* on bean in Colombia, 2323b; Venezuela, 1381k; control, 3669g; effect of N on, 2909; of UV light on, 2908; inhibition of, by barley residues, 2909.
—, groundnut stunt virus on, in U.S.A., 1350; designated PSV–W, 1350.
—, growth of under gnotobiotic conditions, 89.
—, *Isariopsis griseola* on, in Iran, 3262; Ivory Coast, 85; Malawi, 1747a; Venezuela, 1381k, 2007; control, factors affecting, and morphology of, 85; symptoms of, 85, 2007; var. react. to, 2007.
?— leaf roll virus on broad bean, 3262.
— — — — on Leguminosae, 2317, 2318.
— — — — on pea, 3630.
—, lucerne mosaic virus on, effect of temp. on infection by, 3393.
—, — — — +bean yellow mosaic virus on, interaction of, 775.
—, *Macrophomina phaseoli* on, in Malawi, 1747a; Venezuela, 1381k.
— mosaic virus on bean, detection of, 2105, 2106.
*— 'oily pod' in Rhodesia, 3a.
—, ozone injury to, in relation to sulphydryl and ATP content, 3702.
—, *Phakopsora pachyrhizi* on, 1355.
—, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
[Bean] pod mottle virus on soybean, 2919.
— — — — +soybean mosaic virus strs. 1 and 2 on soybean, 2919.
—, *Pseudomonas phaseolicola* on, 3299j; in Germany, 1353; *Malawi, 1747a; antibiotic effect of bacterium S–9 on, 2330; biochemical difference between healthy and susceptible leaves of, 2328; breeding against, 372, 1353; control, 2327; detection of, 699, 3269; physiologic races of, 1353; pigment-forming mutants of, 2329; technique for assessing content of, 1375v.
—, — *savastanoi* on, induction of necrotic lesions by, 410.
—, — *syringae* on, in U.S.A., survival and transmission of, by seed, 2331.
—, — *tabaci* on, factors affecting, 394c.
—, — *viridiflava* on, 3299j.
—, *Pythium aphanidermatum* on, in Ivory Coast, 85; Venezuela, 1381k; morphology and symptoms of, 85.
*—, — *myriotylum* on, in U.S.A., 2913; susceptibility to, 2434.
—, *Sclerotinia fructicola* on, effect of O tension on production of phytoalexins by, 1420.
—, — *sclerotiorum* on, control, 1352.
—, *Sclerotium rolfsii* on, in Venezuela, 1381k; physiologic races of, 1381i; susceptibility to, 1810.
— southern mosaic virus, non-transmisions of, by *Tetranychus urticae*, 70.
— — — — on bean, infection of uninjured leaves by, 1454; peroxidase isozymes in, 2112.
— — — — +*Erysiphe polygoni* on bean, interactions between, 3266.
—, *Thielaviopsis basicola* on, effect of soil amendments on, 2615b; enzymes associated with, 2005.
—, tar vapour injury to, 1072.
—, tobacco mosaic virus on, effect of chloramphenicol on protein synthesis in, 1743z; of light on susceptibility to, 79; not infecting uninjured leaves of, 1454; peroxidase isozymes in, 2112.
—, — necrosis virus on, effect of leaf water balance on, 1053; of UV light on, 2584a; of, on peroxidase activity and rate of respiration of, 1054; infection of uninjured leaves by, 1454.
—, — ring spot virus on, 2645; peroxidase isozymes in, 2112.
—, *Uromyces appendiculatus* on, in Iran, 3262; Ivory Coast, 85; Malawi, 1747a; Venezuela, 1381k; adaptation of, to heat, 1771; breeding against, 372; changes in nucleic acid content after infection, 2006; control, 85; effect of gravity on development of, 698; factors affecting, 85; mobilization factors in, 3631; morphology of, 85; physiology of, 3270, 3271, 3720; properties of hyphae isolated from, 697; protein synthesis by uredospores of, 3666d; selective retention of uredospores by leaves, 2324; symptoms of, 85; virulence of, 2912.
— virus diseases, 1381m; in relation to number of trichomes, 776.
—, *Xanthomonas phaseoli* on, 3299j; control, 1377h; effect of antibiotics on, 397c.
—, — — var. *fuscans* on, in *Malawi, 1747a; *S. Africa, 2915; factors affecting pigment production and virulence of, 1724.
— yellow mosaic virus, relationship of, to clover virus in Hungary, 1743b; to pea mosaic virus, 1460, 3048.

[Bean yellow mosaic virus], resemblance of symptoms of passion fruit woodiness virus to, 271.
— — — — on bean in Bulgaria, 1460; Iran, 3262; breeding against, 372; distribution of, 1349; hosts of, 1349, 1460; symptoms of, 3483; transmission of, 1349, 1460, 3305h.
— — — — on broad bean, 3262.
— — — — on *Cicer arietinum*, 3280.
— — — — on clover, see Clover.
— — — — on cowpea, 3276.
— — — — on *Crotalaria spectabilis*, 1803.
— — — — on *Gladiolus*, 2366.
— — — — on Leguminosae, 2317, 2318.
— — — — on lupin, 245, 2318, 3483.
— — — — on pea, 3305h.
— — — — +lucerne mosaic virus on bean, 775.
— — — — + — — — on pea, 775, 952.
— — — — +*Pythium* on pea, 952.
Beauveria bassiana, culture of, 737a, 2975.
— — on *Eurygaster*, 2976.
— —, physiological variations of, 3684.
— *densa* on *Hypera postica*, 2596.
— sp. on pests of *Crotalaria juncea*, 1392.
— *tenella*, use of, for biological control of *Melolontha melolontha*, 737d.
Beech (*Fagus*) bark necrosis, aetiology of, 1306.
—, *Fomes fomentarius* on, biology of, 1702.
—, *Stereum frustulosum*, *Trametes dickinsii*, and *T. sanguinea* on, calorimetric measurements of decayed, 2889.
*Bees, *Ascosphaera apis* on, in U.S.A., 2376; factors affecting, 737b.
Beet (*Beta vulgaris*), *Alternaria* on, in Belgium, 1705.
—, — *tenuis* on, in U.S.S.R., 1344.
—, *Aphanomyces cochlioides* on, effect of crop residues on, 440; non-occurrence of, in U.S.S.R., 1344.
—, boron deficiency in, 1434.
—, *Botrytis cinerea* on, var. react. to, 2315.
—, *Cercospora beticola* on, in Belgium, 1705; Bulgaria, 1341; Japan, 1709; U.S.A., 2314; biology of, 1341; breeding against, 2313; control, 368, 1341, 1377e, 1743r, 3259; correlation of, with beet savoy virus, 690; factors affecting, 1377e, 1709; hosts of, 2314; relationship of chemical characters to resistance to, 3258; technique for obtaining conidia of, 368; transmission of, by seed and soil, 1377e; weather in relation to conidial dispersal of, 691.
—, cucumber mosaic virus on, effect of supplements on infectivity of, 2102; inactivation and inhibition of, by beet extracts, 689; *in vitro* increase in infectivity of, 466.
— curly top virus on bean, 2650.
— — — — on beet, in Iran, *945, 3063c; alteration in auxin content caused by, 2650; breeding against, 2313; identification of, 3063c; resemblance of new disease to, 945.
— — — — on tomato, see Tomato.
—, *Cylindrocladium scoparium* on, 1930.
— damping-off, 3260.
— diseases in Poland, 2956; Italy, 1807.
—, *Erwinia* on, in Iran, 3063d.
—, *Erysiphe betae* on, in Denmark, 1342; U.S.S.R., 947; C.M.I. description of, 1035b; comparison of perfect state of, with *E. communis* and *E. polygoni*, 1342; control, factors affecting, overwintering of, and var. react. to, 947.
[Beet], fungi on stored in U.S.S.R., effect of, on sugar content of, 2903.
—, *Fusarium* on, in Poland, 2576; U.S.S.R., 1344.
— leaf curl virus, transmission of, 395f.
— mild yellowing virus on beet in England, 2584q, 2585d; *Germany, 1708; incidence of, 2584q; transmission of, by vectors, 1708, 2584q.
— — — — on *Capsella bursa-pastoris*, 1708.
— mosaic virus, non-transmission of, by *Tetranychus urticae*, 70.
— — — on beet in Chile, distribution of, 942; effect of oil on transmission of, by vectors, 3390.
—, *Penicillium* on, in U.S.S.R., 1344.
—, *Peronospora farinosa* on, in England, 692, 2584r; U.S.S.R., 369; control, 2584r, 2899; effect of sugar on susceptibility to, 2575; factors affecting, 369, 946, 2584r; overwintering and severity of, 692; sporulation of, 1710; var. react. to, 3299c.
—, *Pleospora bjoerlingii* on, in Belgium, 1705; Germany, 948; Scotland, associated with strangles, 3625; U.S.S.R., 1344; C.M.I. description of, 1035a; factors affecting, 1344; perfect state of *Phoma betae*, 948; var. react. to, 2315.
—, *Polymyxa betae* on, in the Netherlands, 949; differentiation of, from *P. graminis*, 1345b.
—, *Pseudomonas aptata* on, in Japan, description, host range, and symptoms of, 1711.
—, *Pythium* on, in Poland, 2576.
*—, — *aphanidermatum* on, in Canada, 3260.
—, — *debaryanum* on, non-occurrence of, in U.S.S.R., 1344.
—, *Ramularia beticola* on, in England, 2584r, 2585e; *Germany (E.), 1343; control and factors affecting, 2584r.
— savoy virus on beet, *Cercospora beticola* correlated with and detrimental effect of virus on, 690.
—, *Sclerotium rolfsii* on, in India, symptoms of, 3061.
— storage disorders, 2903.
— strangles, *Pleospora bjoerlingii* occasionally associated with, 3625.
—, toxicity and tolerable residues of chloride products and triphenyltin acetate in, 2042.
—, *Uromyces betae* on, in England, 2585e.
—, *Verticillium* on, in Poland, 2576.
— virus diseases in Turkey, 1796; detecting oil deposits against aphid vectors of, 367; incidence and spread of, 2584e; transmission of, by vectors, 1796.
— western yellows virus, aphid feeding in relation to acquisition and transmission of, 777.
— — — — on beet, in U.S.A., 688, 944, 2000, 3257; control, 3257; effect of, on sugar content of, 3257; of, on yield, 688, 3257; hosts and overwintering of, 944; ?presence of, in intestines of *Myzus persicae*, 2000; source of infection for, 944; transmission of, by vectors, 944; weeds as source of infection for, 3257
— — — — +beet yellows virus str. on beet, effect of, on guard cell chloroplasts and yield, 687.
— yellow vein virus on beet, detrimental effect of, on, 690.
— — wilt virus on beet in Argentina, 2312;

Chile, 942, 2312; distribution of, 942; hosts of and transmission of, 2312.
[Beet] yellows virus on beet in Belgium, 1705, 1706, 2900, 2901; Chile, 942; England, 943, 1707, 2584q, 2585d; Germany, 1708; U.S.A., 3257; aerial photography of, 392d; biology of, 2586e; control, 1706, 1707, 2584q, 2899, 2901, 3257, 3624; diagnosis of, 366, 686; distribution of, 942; effect of time of spraying on, 943; of, on guard cell chloroplasts, 687; of, on sugar content, 2900, 3257; of, on yield, 687, 1705, 3257; electron microscopy of, 1999; free amino acid content of leaves in relation to, 394d; incidence of, 2584q; localization of, 366; transmission of, by vectors, 1706, 1707, 2357a, 2584q, 2900; var. react. to, 2585d.
— — — str.+beet western yellows virus on beet, effect of, on guard cell chloroplasts, 687.
Belladonna mottle virus on *Atropa belladonna*, 2649.
Bellevalia eigii, *Uromyces viennot-bourginii* on, in Israel, 137.
Bemisia tabaci transmitting ?*Abutilon* mosaic virus str., 1055; Malvaceae viruses, 1056; tobacco leaf curl virus str., 3568.
Benzene hexachloride, effect of, on *Armillaria mellea* in soil, 3019.
— — in combination against vectors of sesame viruses, 2800.
Benzimidazole, effect of, on resistance of cereals to *Erysiphe graminis*, 1743p.
—, ineffective against maize necrotic leaf spot, 805.
Benzol in combination against *Erysiphe cichoracearum* on cucumber, 2344.
Benzthiazolyl-thioacetic acid, effect of, on proteins of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium dahliae*, 1013; of, on N metabolism in *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium dahliae*, 1012.
Benzyladenine, effect of, on *Botrytis fabae* on broad bean, 1726.
Berberis, see Barberry.
Bercema F against *Streptomyces scabies* on potato, 1377g.
— - ziram 70 against *Polystigma rubrum* on plum, 2528.
Bermuda grass, see *Cynodon dactylon*.
Beta, *Peronospora farinosa* on, *P. f.* f.sp. *betae* proposed for, 1039.
— *vulgaris*, see Beet.
— — var. *cicla*, see Chard.
Betel, see *Piper betle*.
Betula, see Birch.
BHC, see Benzene hexachloride.
Bibliography of Czechoslovak forestry, 1679.
—, F.A.O. Plant Production and Protection Division publs. 1945–1966, 1748.
Bidens pilosa, *Cercospora coffeicola* on, sporulation, survival and symptoms of, 2169.
Bifusella crepidiformis on spruce, 358.
*— *linearis* on pine, 2867.
Binapacryl against *Podosphaera leucotricha*, 2199.
Biotin, growth response of *Fusarium lateritium* to, 2056.
Bipolaris sorokiniana, see *Cochliobolus sativus*.
Birch (*Betula*), *Coprinus micaceus* on, type of rot caused by, 2890.
— dieback in U.S.A., 1305.
—, *Fomes fomentarius* on, biological characteristics of, 680.
[Birch], *Godronia cassandrae* on, in Canada, pathogenicity of, 2565.
—, mycorrhiza of, in U.S.S.R., 1001.
—, *Polyporus betulinus* on, effect of, on, 3248.
—, relationship between trunk injuries and extent of exposed wood surface, 2847.
(Bis(dimethylamido)phosphoryl) - 3 - alkyl - 5 - anilino-1,2,4-triazoles, systemic fungicidal activity of, 3693.
Bisdithane against *Peronospora arborescens* on opium poppy, 281.
Blackberry (*Rubus* spp.) diseases, Agric. Handbook U.S.D.A. on, 3507.
—, *Gnomonia rubi* on, non-differentiation of isolate on rose from, 2357d.
Blaes E.C. against *Pyricularia oryzae* on rice, 1120.
— —, toxicity of, to rice, 1120.
Blasticidin S against *Pyricularia oryzae* on rice, 1541; vectors of rice stripe virus, 2706.
— —, effect of, on tobacco mosaic virus and/or potato virus X on tomato, 2108.
— —, resistance of *Pyricularia oryzae* to, 3105.
Blitane, new, against *Phytophthora infestans* on potato, 1236.
—, —, constituents of, 1236.
Blitox–50 against *Mycosphaerella berkeleyi* on groundnut, 3641.
Blumeriella jaapii on cherry, 2031f, 3302c.
Boletus, ergosterol content of, 2387.
— *edulis*, effect of culture of, on oak roots, 2389.
— *elegans* on larch, forming mycorrhiza, 424.
— *granulatus* on pine, forming mycorrhiza, 2603.
— *luteus* on pine, forming mycorrhiza, 424.
Books, fungi on, control, 1408; inhibition of, by *Rhizopus stolonifer* and *Trichoderma viride*, 3703.
Boraginaceae, Erysiphaceae on, in U.S.S.R., 1037.
—, *Stemphylium* on, study on, 2590a.
Bordeaux mixture injury to *Narcissus*, 390f; plum, 2528.
Boron, adaptation of *Corticium solani* on cotton and potato to, 420.
— deficiency in beet, 1434; cacao, 1472; celery, 3291; cherry, 3503; crops, 1434; flax, 4d; oil palm, 596, 2804; orange, (?)3063d.
— excess in flax, 4d.
— toxicity in rubber, 616.
— — +calcium deficiency in rubber, 616.
Botanical nomenclature, annotated glossary of, 2617.
Botran against *Sclerotinia sclerotiorum* on bean, 1352.
— as soil treatment against *Sclerotium cepivorum* on onion, 2933a.
**Botryodiplodia theobromae* on *Achras sapota*, 1064.
— — on *Antiaris africana*, 645.
— — on *Araucaria cunninghamii*, 1441.
— — on banana, 2782.
— — on cacao, 1471.
— — on kola, 2438c.
— — on *Litchi chinensis*, 864.
*— — on *Monstera deliciosa*, 545.
— — on orange, 2482.
— — on *Pycnanthus angolensis*, 645.
— *tubericola* on sweet potato, 2248.
Botryosphaeria ribis on *Liquidambar styraciflua*, 2277.
— — on pine, 344.

Botrytis allii, effect of alkylphenols on, 2986.
— — on onion, see Onion.
— — on vegetables, 1995.
*— *byssoidea* on onion, 87.
— *cinerea*, *Acrostalagmus roseus* on sclerotia of, 1173b.
— — as test fungus, 745.
— —, autotropism in spores of, 2051.
— —, *Coniothyrium minitans* on sclerotia of, 1173b.
— —, cultural properties of, 3716.
— —, effect of phosphoric acid derivatives on, 1763.
— — in soil, 3018.
— —, life-cycle of, 453.
— — on beet, 2315, 2903.
— — on broad bean, 3350, 3632, 3666q.
— — on cabbage, 363, 1997.
— — on *Capsicum*, 720.
— — on carnation, 1151.
— — on *Cattleya*, 2504.
— — on *Chrysanthemum*, 390e, 836.
— — on *Cleonia lusitanica*, 2437.
*— — on coffee, 2359a.
— — on currants, 1375p.
— — on *Cymbidium*, 2504.
— — on grapevine, see Grapevine.
— — on lettuce, see Lettuce.
— — on pea, 1348.
— — on peony, 1148.
— — on persimmon, 2786.
— — on potato, 3191.
— — on Ranunculaceae, 539.
— — on raspberry, 2219, 3664e.
— — on spinach, 3261.
— — on strawberry, see Strawberry.
— — on sunflower, 1940.
— — on tomato, 318.
— — on vetch, 1915.
— —, production of pectolytic enzymes by, 3719.
— —, *Rhizopus stolonifer* and *Sporotrichum carnis* on sclerotia of, 1173b.
— —, testing efficacy of fungicides against, 2357j.
— —, types of secretions obtained from, 1374 l.
— *crystallina*, *Plicaria fulva* perfect state of, 1741.
— *fabae* on broad bean, see Bean, broad.
— *tulipae* on *Iris*, 2366,
— — on tulip, 550, 1590, 3473.
Box (*Buxus*), *Phytophthora nicotianae* var. *parasitica* on, epiphytology and etiology of, 834.
Brachycaudus helichrysi transmitting plum pox virus, 569.
Brassica diseases in Tasmania, symptoms of, 3253.
—, *Peronospora parasitica* on, control, 3299a.
—, sesamum phyllody virus on, in India, 3254.
— virus diseases in Hong Kong, 3668a.
*— *campestris*, *Macrophomina phaseoli* on, in U.S.A., 2436.
— — var. *sarson*, see Mustard, Indian.
*— *geniculata*, *Macrophomina phaseoli* on, in U.S.A., 2436.
— *jordanovii*, *Peronospora jordanovii* on, comparison of, with *P. parasitica* on cabbage, 1337.
— *juncea*, see Mustard, Chinese.
— *napobrassica*, see Swede.
— *napus*, see Turnip rape.
— — var. *oleifera*, see Rape.
[*Brassica*] *nigra*, see Mustard.
— — mosaic virus on Chinese cabbage, 362.
— *oleracea*, see Broccoli, Brussels sprouts, Cabbage, Cauliflower.
— — var. *acephala*, see Kale.
— *pekinensis*, see Cabbage, Chinese.
— *rapa*, see Turnip.
Brassicae, *Plasmodiophora brassicae* on, in Austria, 2030; Denmark, 730b; incidence of, 2030.
Brassicol, see Quintozene.
Brazilian tomato yellow band disease proposed for tomato ringspot disease in Brazil, 1291.
Breadfruit (*Artocarpus communis*) decline in Pacific Islands, 723.
**Bremia lactucae* on lettuce, 2a, 1375s, 3299b.
Brestan against *Cercospora beticola*, 1743r; *Omphalia pigmentata* and *O. tralucida* on date palm, 1944; *Phytophthora infestans* on potato, 1236, 2240.
Brevicoryne brassicae, *Entomophthora coronata* on, factors affecting, 1757.
Broad bean, see Bean, Broad.
Broccoli (*Brassica oleracea*), *Fusarium oxysporum* on, resistance mechanisms in, 2435.
—, *Gloeosporium concentricum* on, study on, 939.
5-bromouracil, effect of, on production of fusaric acid by *Fusarium oxysporum* f.sp. *vasinfectum*, 1015.
Bromus mosaic virus, detection of, 472.
— — —, properties of, 3278.
— — —, serological study on, 2742.
— — — on *Agropyron*, 1166.
— — — on *A. repens*, 1167.
— — — on barley, see Barley.
—, *Scolecotrichum graminis* on, in Brazil, 1168a.
—, wheat streak mosaic virus on, reservoir for, 3411.
— *catharticus*, *Pseudomonas setariae* on, 2746.
— *inermis*, *Pyrenophora bromi* on, in Germany (E.), 2743; control, 2511.
— —, *Selenophoma bromigena* on, susceptibility of northern and southern strs. of, to, 1169.
— *japonica*, *Puccinia graminis* and *P. recondita* on, 2660.
— *marginatus*, *Pseudomonas setariae* on, 2746.
— *tectorum*, *Puccinia recondita* on, reservoir for, 1487.
Brussels sprouts (*Brassica oleracea*), *Gloeosporium concentricum* on, study on, 939.
— —, *Pseudomonas maculicola* on, in England, 2585c.
Bryophyllum, *Puccinia graminis* on, germination of uredospores and formation of appressoria by, 103.
Buckwheat (*Fagopyrum esculentum*), *Cercospora beticola* on, 2314.
Bulb diseases, bulletin on, 832.
Butyl 2,4,5-T in diesel oil against *Dothidella ulei* on *Hevea* rubber, 880e.
1-(butylcarbamoyl)-2-benzimidazole carbamic acid methyl ester, see Fungicide 1991.
Buxus, see Box.
Byronia dioica virus disease, 390p.
Byssochlamys nivea, ascospore germination in, 2395.

C–449 (bis(1,2,2-trichloroethyl) sulfoxide) against *Botrytis allii* on onion, 380.

Cabbage (*Brassica oleracea*), *Alternaria brassicicola* on, control, 3299h.
— black ringspot virus on horse-radish, 1704.
—, *Botrytis cinerea* on, effect of, on cell protoplasts, 363; on ribosomes of, 1997.
—, cauliflower mosaic virus on, electron microscopy of, 2572.
—, *Corticium solani* on, in Poland, 3620; control, 1336, 2306; factors affecting, 2306, 3620; genetics of resistance to, 3256.
—, *Erysiphe polygoni* on, genetics of resistance to, 3256.
—, *Fusarium oxysporum* f.sp. *conglutinans* on, in *India, 683; genetics of resistance to, 3256.
—, *Geotrichum* on roots of, in Poland, 3620.
—, *Gloeosporium concentricum* on, study on, 939.
— internal tipburn, genetics of resistance to, 3256.
—, *Leptosphaeria maculans* on, in U.S.A., popular bulletin on, 3621; survival of, in soil, 1996.
—, *Moniliopsis aderholdii* on, form of *Corticium solani*, 455.
— mosaic virus on cabbage, genetics of resistance to, 3256.
—, *Olpidium brassicae* on, isolate differences in, 365.
—, *Peronospora parasitica* on, in Bulgaria, 2896; comparison of *P. jordanovii* on *Brassica jordanovii* with, 1337; control, 1375s, 2896, 3616; var. react. to, 2896.
—, *Plasmodiophora brassicae* on, in Bulgaria, 2307; Canada, 937; control, 394j, 1336, 2307, 2573a, b; 2895; factors affecting, 3619; metabolism in hypocotyls during development, 3618; testing for resistance to, 937; var. react. to, 937.
—, *Pythium debaryanum* on, in Poland, 3620.
— root diseases, effect of pesticides on, 2306.
— virus diseases control, 64.
—, *Xanthomonas campestris* on, in Yugoslavia, 3622; control, 996; incidence of, 3622.
—, yeasts on roots of, in Poland, 3620.
—, Chinese (*Brassica pekinensis*), *Brassica nigra* mosaic virus on, in the Philippines, 362.
—, —, *Erwinia aroideae* on, effect of sowing time on, 2897.
—, —, — *carotovora* can infect, 3315.
—, —, turnip mosaic virus on, electron microscopy of, 467.
—, —, — yellow mosaic virus on, origin of mosaic induced by, 1057.
—, —, — — — — strs. on, role of virus and leaf ontogeny in production of mosaic patterns by, 1703.
—, —, — — — — necrotic str. on, production of tubes of virus particles by, 3614.
Cacao (*Theobroma cacao*), boron deficiency in, in Ghana, *Bathycoelia thalassina* associated with, 1472.
—, *Botryodiplodia theobromae* on, associated with cacao dieback, 1471.
—, *Calonectria rigidiuscula* on, associated with cacao dieback, 1471; physiological requirements of, 3070c.
—, *Ceratocystis* on, screening for resistance to, 1470b.
—, — *fimbriata* on, chlorogenic acid content in relation to resistance to, 94; testing for resistance to, 781a; transmission of, by vectors, 1470a.
[Cacao] die-back in Papua and New Guinea, 400; distribution and effects of, and pathogens associated with, 1471.
—, *Fomes lignosus* and *F. noxius* on, in Nigeria, toxicity of tillex to, 2438b.
—, *Marasmius perniciosus* on, genetics of resistance to, 781b.
—, *Monilia roreri* on, in Ecuador, epidemiology of, 1469.
— mottle leaf virus, *Adansonia digitata* virus classified with, 1074.
— — — — on cacao, properties of, 480, 3070a.
—, *Phytophthora heveae* on, in W. Malaysia and Sabah, 3060b.
—, — *palmivora* on, in Brazil, 1468, 2120; Ivory Coast, 1811; Nigeria, 2438a; Papua and New Guinea, 2121; control, 2438a; factors affecting, 2121; pod shells as source of infection, 1468; resistance to, 781c, 2120; role of phenolic compounds during infection of, 1076, 1812; screening for resistance to, 1470c; sites of survival of, 1811; variation of pathogenicity with source of inoculum, 1813; var. react. to, 2438a.
— swollen shoot virus, *Cola chlamydantha* virus classified with, 1074.
— — — — on cacao, purification and properties of, 3070a.
— — — — str. 1A on cacao, tolerance to, 1075.
—, *Verticillium dahliae* on, in Uganda, 3059c.
— virus diseases in Nigeria, 2438a; transmission of, 3070b.
Cactus virus X, serology of, 2643.
Cadmium acetate, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
— succinate, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
**Caeoma sanctae-crucis* on *Araucaria araucana*, 1981.
Caesalpinia pulcherrima, Ravenelia humphreyana on, cuticular penetration by uredospores, 2037.
Cajanus cajan, see Pigeon pea.
Calaican against *Sporidesmium sicynum* on fig, 1213.
Calcium deficiency in flax, 4d; pea, 1g; rubber, 616.
—, effect of, on growth of *Helminthosporium*, 2063; on *Phytophthora nicotianae* on tobacco, 316.
— excess in flax, 4d.
— carbonate against apple lenticel rots, 1188.
— chloride against apple bitter pit, 253; *Botrytis allii* on onion, 380.
— cyanamide against *Cercosporella herpotrichoides* on wheat, 2678; *Typhula incarnata* on barley, 2691.
— —, effect of, on development of basidiomycetes, 3331; on fungi on nematodes, 3331; on *Fusarium*, 3331.
— nitrate against apple bitter pit, 253, 1608, 2522.
— — in combination against apple tree pit, 2207.
— polysulphide against *Podosphaera leucotricha*, 1182.
— sorbate against *Verticillium dahliae* on cotton, 1138.
— sulphate against strawberry crinkle virus on strawberry, 265.
— tetrathionate against *Erysiphe cichoracearum* on cucumber, 386.

Calendula, *Ascochyta delphinii*, *Phyllosticta gaillardiae* and *Puccinia flaveriae* on, in U.S.S.R., 2732.
Caliciopsis pinea on pine, 345, 3238.
Callistephus chinensis, see Aster.
Calomel, see Mercurous Chloride.
Calonectria crotalariae on groundnut, 962.
— *nivalis*, interaction of near-UV light and temp. on sporulation of, 1017.
— — on barley, 2681.
— — on cereals, 1077, 1476.
— — on rye, see Rye.
— — on turf, 1592, 2032a.
— — on wheat, see Wheat.
— —, primary luminescence of, 460.
— *quinqueseptata*, perfect state of *Cylindrocladium quinqueseptatum*, 765.
— *rigidiuscula* on cacao, 1471, 3070c.
— *uniseptata* on *Paphiopedilum callosum*, 2739.
Camellia sinensis, see Tea.
Candida albicans, antagonism of antibiotic from, to *Rhizopogon roseolus* and *Tricholoma saponaceum*, 1764.
— *krusei* on lemon, 2720.
Canna, *Ascochyta cannae* on, in U.S.S.R., 2732.
— mosaic virus on *Canna* in U.S.S.R., symptoms of, 1150.
Cannabis sativa, see Hemp.
Cantaloupe (*Cucumis melo* var. *cantaloupina*), *Erysiphe cichoracearum* on, genetics of resistance to, 2944; var. react. to, 715.
—, *Fusarium roseum* and *F. solani* on, in U.S.A., 2582.
—, *Pseudoperonospora cubensis* on, var. react. to, 715.
—, watermelon mosaic virus 1 on, var. react. to, 715.
—, — — — 2 on, in U.S.A., not distinct from cucurbit latent virus, 2941.
Cantharellus infundibuliformis virus disease, 3057.
Capsella bursa-pastoris, *Arabis* mosaic virus on, transmission of, by seed, 3508.
— —, beet mild yellows virus on, causing mild vein clearing, 1708.
Capsicin, effect of, on growth and virulence of *Agrobacterium tumefaciens*, 1755.
Capsicum, alfalfa mosaic virus on, in Hungary, 1744e.
—, *Alternaria capsici-annui* on, control, 720.
—, — *porri* on, factors affecting, 3069.
—, — *tenuis* on, in U.S.A., 1370; study on, 1370.
—, *Botrytis cinerea* on, control, 720.
—, *Cercospora capsici* on, in Ivory Coast, morphology and symptoms of, 85.
—, *Colletotrichum nigrum* on, control, 720.
—, *Corynebacterium michiganense* on, var. and spec. react. to, 1972.
—, cucumber mosaic virus on, 1745i; in Bulgaria, 2100; *India, 3293; susceptibility to, 2648; transmission of, by vectors, 1739; var. react. to, 1739.
—, — — — str. on, in Hungary, 1744e.
—, *Deuterophoma tracheiphila* on, effect of, on, 1883a.
—, effect of fungi on respiration of, 751.
—, *Fusarium oxysporum* on, control, 720.
—, — *solani* on, 1016.
—, *Glomerella cingulata* on, in Vietnam, 980c; control, 720.
—, inhibition of potato virus X ring spot str., by extracts of, 470a; of radish mosaic virus by extracts of, 471.
[*Capsicum*], *Macrophomina phaseoli* can infect, 196.
— mosaic virus on *Capsicum*, effect of, on chlorophyll, 3295.
—, *Phoma solanicola* on, control, 720.
—, *Phytophthora capsici* on, in Italy, 2949; *Trinidad, 2351.
—, — *drechsleri* on, studies on, 1221.
*—, — *nicotianae* var. *parasitica* on, in Rhodesia, 2588a.
—, pipecolic acid content in relation to disease resistance, 2158.
—, potato virus Y on, resistance to, 2648.
—, *Pseudomonas solanacearum* on, 280; in Bulgaria, penetration of, 2594.
—, — *syringae* on, 1530.
*—, — — var. *capsicicola* on, biochemistry, morphology and symptoms of, 2026.
—, *Pythium debaryanum* on, control, 2027.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, *Sirophoma capsici* on, control, 720.
—, *Stemphylium botryosum* f.sp. *capsicum* on, distinction of, from *Pleospora herbarum* and *S. solani*, 3659.
—, *Stemphylium solani* on, in Ivory Coast, morphology and symptoms of, 85.
—, stolbur virus on, in Bulgaria, 2100; symptoms of and transmission of, by vectors, 1451.
—, tobacco etch virus on, resistance to, 2648.
—, — leaf curl virus str. on, 3568.
—, — mosaic virus on, in Bulgaria, 1044; Hungary, 1744e; control and incidence of, 1044; resistance to, 2648; symptoms of, 1044.
— virus diseases in Bulgaria, 2100; Venezuela, 3306.
—, *Xanthomonas vesicatoria* on, in Hungary, 1743t; antibiotic effect of bacterium S–9 on, 2330; effect of, on loss of electrolytes from leaves of, 2950; factors affecting stomatal activity and susceptibility, 3318; var. react. to, 1743t.
Captafol against *Peronospora parasitica* on cabbage, 3616.
Captan against *Alternaria* on tomato, 2344; *Botrytis allii* on onion, 380; *B. cinerea* on grapevine, 3971, 3173; on persimmon, 2786; on raspberry, 2219; on strawberry, 3163; *Bremia lactucae* on lettuce, 1375s; *Colletotrichum lagenarium* on cucumber, 971; *Cylindrosporium maculans* on mulberry, 1630; *Elsinoe veneta* on raspberry, 1377n; *Fusarium* on grapevine, 3173; on pea, 3265; *F. roseum* on *Coronilla varia*, 541; *F. roseum* and *F. solani* on cantaloupe, 2582; *Gibberella fujikuroi* on *Freesia*, 390g; *Gnomonia leptostyla* on walnut, 2280; *Peronospora parasitica* on cabbage, 1375s; *Pezicula malicorticis* on apple, 1185; *Phomopsis diospyri* on persimmon, 2786; *Plasmopara viticola*, 2792; *Pyrenochaeta terrestris* on tomato, 391e; *Pythium* on pea, 3265; *Rhizoctonia* on grapevine, 3173; pea, 3265; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Septoria lycopersici* on tomato, 1377i; *Taphrina deformans* on peach, 2529; *Trichometasphaeria turcica* on maize, 1113a; *Xanthomonas juglandis* on walnut, 2280; as seed treatment for groundnut, 2019; for maize, 1113e; for pine, 1319; as soil disinfectant, 391e, 967, 2356g.
—, effect of, on *Aspergillus flavus* and *A. niger* on groundnut, 2016; on *Botrytis cinerea* on

strawberry, 2532, 3301a; on *Macrophomina phaseoli* on groundnut, 2014; on *Neurospora crassa*, 3689; on strawberry pollen, 3301.
[Captan], fungitoxicity of, in soil, 2985.
— residues, methods for analysing, 390r.
— in combination against *Colletotrichum* on pine, 919b; *Peronospora destructor* on onion, 965; *Podosphaera leucotricha* on apple, 2198; *Sclerotinia minor* on radish, 2356d; *Venturia inaequalis*, 250, 2198.
— — — as seed treatment for groundnut, 2019.
— 50W against *Cylindrosporium* on *Rhus trilobata* and *Sheperdia argentea*, 335; damping-off of pine and spruce, 341.
— —, effect of, on germination of pine and spruce, 2857.
— — versus thiram SF–75, 341; zineb 50W, 341.
Caragana arborescens, *Septoria caraganae* on, in Canada, 643d.
— — virus disease in Poland, effect of plant sap on properties and symptoms of, 1975.
Caraway (*Carum carvi*), *Septoria umbelliferarum* on, in U.S.S.R., 1464.
Carbadin against *Botrytis allii* on vegetables, 1995; *Sclerotinia linhartiana* on quince, 397h; vegetable diseases, 1995.
Carbaryl against vectors of rice tungro virus, 1537e.
Carbatene against *Peronospora destructor* on onion, 2929.
Carbathion against *Fusarium* on cucumber, 973; on pine, 2293; *Plasmodiophora brassicae* on cabbage, 1336, 2895; as soil disinfectant, 639, 1336.
Carbolineum against *Phragmidium tuberculatum* and *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
Carbon, effect of, on growth of fungi on wood pulp, 936; on spore germination of *Glomerella cingulata*, 433.
— dioxide, effect of, on germination of chlamydospores of *Fusarium solani* f.sp. *phaseoli* in soil, 2911.
Carboxylic acids, effect of, on *Ceratocystis ulmi* on elm, 1307.
Cardamom, greater, mosaic streak virus on *Amomum subulatum*, 2106.
Carica papaya, see Papaw.
Carnation (*Dianthus caryophyllus*), *Alternaria dianthi* on, in Bulgaria, 3464.
—, A manual of production of, 835.
—, *Armillaria mellea* on, in U.S.A., symptoms of, 2734.
—, *Botrytis cinerea* on, effect of polythene bags on and factors affecting germination of conidia of, 1151.
— chlorosis, types of, 1152.
—, *Corticium solani* on, comparison of 2 strs. of, 222.
—, *Didymellina dianthi* on and diseases of, in Bulgaria, 3464.
—, effect of low levels of ozone on, 3465.
(?)— etched ring virus on carnation in the Netherlands, 3459a.
—, *Erwinia chrysanthemi* on, in U.S.A., 2498; symptoms of, 1904, 2498.
—, *Fusarium avenaceum* on, 3126.
—, — *oxysporum* f.sp. *dianthi* on, in Bulgaria, 3464; France, 3129; Netherlands, 3459a; control, 3464; effect of difolatan on, 2356h; examination of in fluorescent light, 3129; var. react. to, 3459a.
[Carnation, *Fusarium*] *redolens* on, in the Netherlands, 3459a.
—, — — f.sp. *dianthi* on, factors affecting, 3069; pathogenicity of, 1c.
—, — *roseum* on, in Bulgaria, 3464; Italy, 2356e; control, 1582, 2356e, g, 3464.
— latent virus on carnation, elimination of, by meristem-tip culture, 3462; serology of, 1048.
— — — on *Dianthus barbatus*, 3462.
— mottle virus on carnation in the Netherlands, 3459a; elimination of, by meristem tip culture, 3462; serological detection of, 2179.
— — — on *Dianthus barbatus*, 3462.
— — — str. on carnation, differentiation of, from strs. on other hosts and physical properties of, 3463.
—, *Pectobacterium parthenii* var. *dianthicola* on, in France, examination of in fluorescent light, 3129.
—, *Phytophthora* on, in Iran, 3063b.
—, *Pseudomonas caryophylli* on, in France, 3129; *Hungary, 2497; examination of in fluorescent light, 3129; factors affecting, 1583; symptoms of, 2497.
— ring spot virus on carnation, elimination of, by meristem-tip culture, 3462.
— — — — — on *Dianthus barbatus*, 221, 2462.
—, sowbane mosaic virus carnation 689 str. on, relationship of, to *Chenopodium* star mottle str., 390i.
— tipburn, effect of oxidant level of air on, 223.
—, *Uromyces dianthi* on, in Bulgaria, 3464; Rumania, 397f; control, 397f, 3464; effect of, on, 1903a; on germination of uredospores, 1903b; factors affecting, 397f, 3464; var. react. to, 1903a.
— vein mottle virus on carnation, elimination of, by meristem-tip culture, 3462.
— — — — — on *Dianthus barbatus*, 3462.
—, *Verticillium cinerescens* on, in France, 3129; Italy, 2356e; control, 2356e, 3128; effect of difolatan on, 2356h; spread of, 390b; examination of, in fluorescent light, 3129.
— 689 virus, *Chrysanthemum* virus serologically related to, 390k.
— J–239 virus on carnation, resemblance of, to cauliflower and *Dahlia* mosaic viruses, 390i.
— virus diseases in the Netherlands, 3459a.
Carpinus betulus, see Hornbeam.
Carrot (*Daucus carota*), *Alternaria dauci* on, in *U.S.S.R., 3066; factors affecting, 3612.
—, ash yellows-type virus can infect, 2590i.
*—, *Centrospora acerina* on, in N.Z., 980d.
—, *Ceratocystis fimbriata* on, selective isolation of, 1446.
—, *Cercospora carotae* on, in *Chile, 1733; factors affecting, 3612; morphology and symptoms of, 1733.
— diseases, causes, occurrence, symptoms and transmission of, 3613.
—, *Erwinia carotovora* on, 3315; in Chile, morphology and symptoms of, 1733.
— motley dwarf virus, spread of, 2584e.
— mottle virus, properties of, 3301i.
—, *Phoma rostrupii* on, effect of thiram on, 2936.
—, *Pythium aphanidermatum* on, inhibition of, by phenolic compound, 382; mechanism of resistance to, 1359.
—, *Rhizoctonia carotae* on, infested storage crates as source of inoculum, 2341.

[Carrot], *Septoria dauci* on, in U.S.S.R., 1464.
—, *Stemphylium radicinum* on, nutritional study of, 2342; persistence of, in soil, 3299i.
— storage disorders, factors affecting, 1005.
Carthamus, *Colletotrichum*, *Corticium solani*, and *Macrophomina phaseoli* on, in Colombia, 1939.
— *tinctorius*, see Safflower.
Carum carvi, see Caraway.
Carya pecan, see Pecan.
Cassava (*Manihot utilissima*) mosaic virus on cassava, electron microscopy of, 724.
— vein mosaic virus on cassava, spheroidal particles associated with, 725.
—, *Xanthomonas manihotis* on, aetiology of, 726.
Castanea, see Chestnut.
Castilleja, *Peridermium filamentosum* on, differentiation of other *P.* races from, 2287.
Castor, see *Ricinus communis*.
Casuarina equisetifolia, *Ganoderma lucidum* and *Polyporus gilvus* on, in U.A.R., 3580.
Cationic compounds, effect of, on *Erysiphe graminis* on oats, 1103.
Cattleya, *Botrytis cinerea* on, control, 2504.
—, tobacco mosaic virus orchid str. on, effect of, on, 3136.
*Cauliflower (*Brassica oleracea*), *Albugo candida* on, in Rhodesia, 2359a.
—, *Corticium solani* on, in Poland, insect damage associated with, 3620.
—, *Geotrichum* on, in Poland, 3620.
— mosaic virus, properties of, 684, 2308.
— — —, resemblance of carnation J–239 virus to, 390i.
— — — on cabbage, 2572.
— — — on Cruciferae, 2894.
— — — on horse radish, 1704.
—, *Peronospora parasitica* on, control, 1375t.
—, *Plasmodiophora brassicae* on, in Canada, testing for resistance to, 937.
—, yeasts on, in Poland, 3620.
CDM against *Erysiphe graminis* on cereals, 1375j.
Cedar (*Cedrus*), diseases in U.S.S.R., 1314.
Celcure as timber preservative, 678.
Celeriac, see Celery.
Celery (*Apium graveolens*), *Arabis* mosaic virus on, symptoms of, 3299d.
—, boron deficiency in, var. reaction to, 3291.
—, California aster yellows virus on, 3611.
—, *Cercospora apii* on, estimating losses caused by, 2654.
—, cucumber mosaic virus on, 3611.
—, *Erwinia carotovora* can infect, 3315.
—, *Fusarium oxysporum* f.sp. *pisi* not infecting, 695.
—, lucerne mosaic virus on, 3611.
—, manganese toxicity in, in Irish Republic, 711.
—, *Septoria apiicola* on, in U.S.S.R., 1464; causing leaf spot, 2937; control, 2023; detecting viable spores of, in seed, 1734; factors affecting, 3651; overwintering of, 3299f.
—, strawberry latent ring spot virus on, symptoms of, 3299d.
—, virus on, unidentified, 3299d.
—, Western mosaic virus on celery, partial purification, properties and serology of, 710a; serodiagnosis of, 710b.
Cellulose, microfungi on, stud n 2988.
Celosia argentea as indicator for potato virus Y strs., 1948.
Cenangium ferruginosum on pine, 346.
Centaurea, Uredinales on, in Iraq, 46b.
Centranthus, *Phoma* can infect, 2357d.
**Centrospora acerina* on carrot, 980d.
— — on pansy, 841.
Cephaelis ipecacuanha, *Cercospora* on, damping-off of, *Mycena citricolor*, and *Rosellinia* on, in Nicaragua, 3175.
Cephaloascus fragrans on timber, 360.
Cephalosporium acremonium on maize, 2476.
— *cucumerinum* and *C. curtipes* on cucumber, 2581.
— *diospyri* on persimmon, 1681.
— *gramineum*, antagonism of *Fusarium culmorum* and *Trichoderma* to, 3027.
— — on wheat, see Wheat.
— *gregatum* on soybean straw, 3634.
— *sacchari*, study on enzymes of, 617.
*— *zonatum* on coffee, 1560.
Ceratitis capitata, *Aspergillus tamarii* on, mode of action of, 2040.
Ceratocystis araucariae on timber, 1990.
*— *bicolor* on spruce, 646.
— *coerulescens*, analysis of acetylated alcohols and other steam-volatile products in, 2064.
— *europhioides* on spruce, 646.
— *fagacearum*, cellulose production by, 1789.
— —, nuclear division in, 3376.
— — on oak, see Oak.
— —, sexual reproduction of, in culture, 330.
— *fimbriata*, biology of, 766.
— —, cellulose production by, 1789.
— —, *C. moniliformis* distinct from and *C. variospora* synonym of, 766.
— —, C.M.I. description of, 1035a.
— —, morphology of, 766.
— — on almond and apricot, 3496.
— — on aspen, 2271a.
— — on cacao, 94, 781a, 1470a.
— — on carrot, 1446.
— — on peach, 3496.
— — on prune, 3496.
— — on sweet potato, 2248, 2819, 3547.
— *minor*, effect of pH of media and temp. on growth of, 361.
— *moniliformis*, C.M.I. description of, 1035a.
— —, distinct from *C. fimbriata*, 766.
— —, hosts of, 1035a.
— — on timber, 1990.
— *montii* on pine, 3252.
— *olivacea*, cellulose production by, 1789.
— *paradoxa*, C.M.I. description of and hosts of, 1035a.
— — on oil palm, 596, 3180.
— — on pineapple, 3513.
— — on sugarcane, see Sugarcane.
— *penicillata* on spruce, 646.
— *pilifera*, effect of pH of media and temp. on growth of, 361.
— *populina* on aspen, 1687, 2271a.
— *roboris* on oak, 329.
— *tremulo-aurea* on aspen, *646, 2271a.
— *ulmi*, cellulose production by, 1789.
— — on elm, see Elm.
— —, technique for labelling with C, 653.
— *variospora*, synonym of *C. fimbriata*, 766.
Cercocarpus montanus, effect of H_2O_2 on seeds of, 1980.
Cercospora antirrhini in soil, 1149.
— — on *Antirrhinum* and *Maurandia*, 1149.

[*Cercospora*] *apii* on celery, 2654.
— *beticola*, factors affecting sporulation of, 1377f.
— — on beet, see Beet.
— — on vegetables, 2893.
— *bunchosiae* on *Malpighia punicifolia*, 2534.
— *canescens* on bean, 1381k.
— (?)— on *Lablab niger*, 2032b.
— *capsici* on *Capsicum*, 85.
*— *carotae* on carrot, 1733, 3612.
— *citri-grisea* on citrus, (?)817, 2960c.
— *coffeicola*, hosts of, 2169.
— — on coffee, see Coffee.
— — on *Ricinus communis*, 399d.
— *cruenta* on bean, 1381k.
— *cryptomeriae* on Coniferae and *Sequoia gigantea*, 1327.
— *dolichi*, resemblance of *C.* sp. on *Lablab niger* to, 2918.
— *elaeidis* on oil palm, 595, 3180.
— *fuligena* on tomato, 85.
— *gigantea* on citrus, 2960c.
— *gossypina* on cotton, 532.
— *insulana* on *Limonium sinuatum*, 3470.
— *kikuchii* on soybean, *1381g, 1939.
— *koepkei* on sugarcane, 1658.
— *lhuillieri* on cotton, 1573.
*— *malayensis* on *Hibiscus ficulneus*, 975.
— *medicaginis* on *Chenopodium album*, *Datura fastuosa*, and lucerne, 3143.
— *nicotianae* on tobacco, 885, 2831.
— *oryzae* on rice, 179, 3065, *3107.
*— *pini-densiflora* on pine, 2359a.
— *ricinella* on *Ricinus communis*, 1939.
— *rubrotincta* on cherry, 2759.
— *sequoiae*, *C. cryptomeriae* synonymous with, 1327.
— — on *Juniperus scopulorum* and *J. virginiana*, 2271d, 2862.
— *sesami* on sesame, 1381h, 1939.
— *sojina* on soybean, 2921.
— *sorghi* on sorghum, 11131.
*— *typhoides* on *Pennisetum typhoides*, 1531.
— *zebrina* on clover and *Medicago*, 1168b.
Cercosporae in Japan, 2620.
Cercosporella herpotrichoides, effect of chlorocholinchloride on, 1093.
— —, factors affecting sporulation of, 1377f.
— — in soil, 2584n.
— —, interaction of near-UV light and temp. on sporulation of, 1017.
— — on barley, 783, 1819.
— — on cereals, see Cereals.
— — on grasses and oats, 2357h.
— — on rye, 783.
— — on wheat, see Wheat.
Cercosporidium personatum, nov. comb. for conidial *Mycosphaerella berkeleyi*, 450.
— *punctum*, hosts and nov. comb., 450.
Cereals, barley yellow dwarf virus on, in N.Z., 2659; U.S.A., 782; transmission of, by vectors, 2659; vector infectivity levels, 782.
—, *Bromus* mosaic virus on, 1167.
—, *Calonectria nivalis* on, in Scandinavia, 481; control, 1077; determination of, 1476.
—, *Cercosporella herpotrichoides* on, in Austria, 2030; Denmark, 730b, 1477; Hungary, 1743o; control, 1375f; effect of agrotechnique on incidence of, 1743o; of direct drilling on, 1375f; factors affecting, 2030; flame burning ineffective against, 25841; histology of penetration by, 2586c; masking of symptoms of *Cochliobolus sativus* by, 1477; severity of, 2030.
[Cereals], *Cladosporium herbarum* on, in Austria, severity of, 2030.
—, *Cochliobolus sativus* on, in Denmark, 1477; control, 1077; masking of symptoms of, by *Cercosporella herpotrichoides* and *Ophiobolus graminis*, 1477.
—, *Corticium solani* on, flame burning ineffective against, 2584 l.
—, diseases of, in Poland, 2956; epidemiology of, 1375d; report on, 2956; review of breeding for resistance to, 1814.
—, Erysiphales on, electron microscopy of, 2585i.
—, *Erysiphe graminis* on, in England, 1743j; Hungary, 1404, 1743k, p; U.S.S.R., 3407; C.M.I. description of, 1035b; control, 1375j, 1404, 1743j, k, 3407; effect of benzimidazole on resistance to, 1743p; factors affecting, 3407; virulence of, 3407.
—, *Fusarium* on, in Denmark, 730b.
—, — *roseum* on, control, 1077.
—, — — f.sp. *cerealis* 'Culmorum' on, in Pacific Northwest, symptoms of, 1818.
—, *Gibberella avenacea* on, in Pacific Northwest, 1818.
—, — *zeae* on, in Scandinavia, 481.
—, *Leptosphaeria nodorum* on, in the Netherlands, 1817; control, 1077.
—, mycorrhiza of, in Poland, 1412.
—, northern cereal mosaic virus on, isolation and transmission of, by vectors, 3071.
—, *Ophiobolus graminis* on, in Denmark, 730b, 1477; Hungary, 1743o; Kenya, 2358d; aerial photography of, 392d; control, 1375f; effect of agrotechnique on incidence of, 1743o; of direct drilling on, 1375f; of prolonged successive cultivation on, 1375g; flame burning ineffective against, 25841; masking of symptoms of *Cochliobolus sativus* by, 1477.
—, *Puccinia* on, forecasting of, 1808.
—, — *coronata* on, apparatus for inoculating leaves with urediospores of, 2440.
—, — *graminis* on, 2496; in Austria, 1816; Denmark, 2962; Europe, 1081; Iran, 3063a, 3076; barberry as source of infection for, 2962; control, 1816; epidemiology of, 1081; factors affecting, 1816.
—, — *recondita* on, in Iran, 3076.
—, — *striiformis* on, in Iran, 3063a, 3076.
—, *Pyrenophora avenae* on, control, 1077.
—, — *graminea* on, in Scandinavia, 481.
—, — *teres* on, control, 1077.
—, *Tilletia caries* on, in Hungary, 1404; Scandinavia, 481.
—, Uredinales on, in the world, 986b; electron microscopy of, 2585i.
—, Ustilaginales on, regressive changes in, in tissues of, 3013.
—, *Ustilago* on, inoculation of, 2586d; phylogenetic relationships between species of, 482; production of substance toxic to, 2586d.
—, — *avenae* on, in Scandinavia, 481.
—, virus diseases of, control, 64, 1475.
Ceredon as seed treatment for apple, 1377m.
Ceresan against *Typhula incarnata* on barley, 2691; as seed treatment for *Capsicum*, 720; for rye, 146; sorghum, 3098.
—, effect of, on *Ustilago avenae* on oats and *U. hordei* on barley, 1853.

[Ceresan], inhibition of *Typhula* on *Ficus pumila* by, 543.
— in combination as seed treatment for groundnut, 2019.
— red as seed treatment for groundnut, 2019.
— wet against *Leptosphaeria salvinii* on rice, 3336.
— —, inhibition of *Trichometasphaeria turcica* on maize by, 508.
— — in combination as seed treatment for rice, 1113s; for sesame, 593.
Cerosipha forbesi transmitting strawberry crinkle virus, 265.
α chaconine, fungitoxicity of, 3193.
Chaetomium cochlioides, loss of antagonism to *Fusarium solani* f.sp. *phaseoli* by, 2910.
— *globosum* as test fungus for plastics, 998.
— —, loss of antagonism to *Fusarium solani* f.sp. *phaseoli* by, 2910.
— — on maize, 1524.
— — on tomato seed, 1302.
— — on wood pulp, 936.
*— *olivaceum* on mushroom, 727.
— *trilaterale* on stored rice, 520.
Chaetosiphon fragaefolii transmitting strawberry crinkle virus and strawberry mild yellow edge virus, 1624.
— *jacobi* transmitting strawberry crinkle virus, 1928; strawberry mottle virus, 1625.
Chainia isolate No. 3047, production of chainin by, 2386.
Chainin, antimicrobial spectrum and physicochemical properties of, 2386.
Chamaecyparis lawsoniana, *Phytophthora lateralis* on, control, 3466.
— *nootkatensis*, fungi on, production of 1-hydroxy-3-methylanthraquinone by, 3592.
Chard (*Beta vulgaris* var. *cicla*), beet yellow wilt virus on, 2312.
Cheiranthus cheiri, see Wallflower.
Chemagro 4497 against *Urocystis cepulae* on onion, 3649.
— 2635, fungitoxicity of, in soil, 2985.
Chenopodiaceae, passion fruit woodiness virus can infect, 271.
Chenopodium as indicator for potato viruses X and Y, 3536; for stone fruit viruses, 1743f; for watermelon mosaic virus 2, 3652.
—, barley viruses A_1 and B_1 on, react. to, 2135.
—, inhibition of turnip mosaic virus Japanese str. by sap of, 468.
—, *Iris* mosaic virus on, 2183.
—, tobacco mosaic virus can infect, 1052.
— *album*, barley stripe mosaic virus on, 3427.
— —, bean yellow mosaic virus on, in Bulgaria, 1460.
— —, *Cercospora medicaginis* on, (?)source of inoculum for, 3143.
— —, *Peronospora farinosa* on, *P. farinosa* f.sp. *chenopodii* proposed for, 1039.
— —, radish enation mosaic virus on, symptoms of, 2309.
— —, strawberry mottle virus can infect, 1625.
— —, watermelon mosaic virus 2 on, effect of on, and transmission of, 3652.
— *amaranticolor*, apple virus on, resemblance of symptoms of, to apple chlorotic leaf spot virus, 1177; transmission of, by sap, 469.
— — as indicator for carnation mottle virus, 2179; cherry destructive canker virus, 1177.
— —, barley stripe mosaic virus on, 3427.
— —, *C. hybridum* mosaic virus on, electron microscopy of, 467.
[*Chenopodium amaranticolor*], citrus infectious variegation virus on, transmission of mechanically, 2715.
— —, cowpea mosaic virus on, electron microscopy of, 467.
— —, cucumber mosaic virus on, effect of beet sap on, 689.
— —, — — — str. on, 721.
— —, grapevine fanleaf virus on, transmission of, by sap, 469.
— —, *Hippeastrum* mosaic virus on, 540.
— —, pear viruses on, transmission of, by sap, 469.
— —, radish enation mosaic virus on, symptoms of, 2309.
— —, strawberry mottle virus can infect, 1625.
— —, tobacco mosaic virus on, effect of DMSO on, 1664.
— —, tobacco mosaic virus str. on, 2740.
— —, — necrosis virus on, effect of UV light on, 2584a.
— *ambrosioides*, bean yellow mosaic virus can infect, 1460.
— —, *Cercospora coffeicola* on, sporulation of and survival of, in soil debris, 2169.
— *botrys*, as indicator for potato virus Y strs., 1948.
— — and *C. capitatum*, bean yellow mosaic virus can infect, 1460.
— *foetidum* as indicator for plum pox virus, 2357i.
— —, plum pox virus on, 13771; transmission of, by sap, 2763.
— *hybridum* mosaic virus on *C. amaranticolor*, 467.
— *murale*, see Sowbane.
— *quinoa*, apple latent virus on, 3487.
— —, — virus on, resemblance of symptoms of, to apple chlorotic leaf spot virus, 1177; transmission of, by sap, 469.
— — as indicator for apple chlorotic leaf spot virus, 1600; for cherry destructive canker virus, 1177; for grapevine fanleaf virus, 2537.
— —, barley stripe mosaic virus on, 3427.
— —, bean yellow mosaic virus can infect, 1460.
— —, belladonna mottle virus can infect, 2649.
— —, cherry chlorotic-necrotic ring spot virus not infecting, 255.
— —, — Pfeffinger virus on, advance warning test of, 2357i.
— —, citrus infectious variegation virus on, transmission of mechanically, 2715.
— —, grapevine fanleaf virus on, transmission of, by sap, 469.
— —, pea false leaf roll virus can infect, 1714.
— —, pear viruses on, transmission of, by sap, 469.
— —, strawberry mottle virus can infect, 1625.
— —, use of, in detecting seed transmission of lettuce mosaic virus, 383.
— *strictum*, watermelon mosaic virus 2 on, effect of on, and transmission of, 3652.
Cherry (*Prunus avium* and *P. cerasus*), *Agrobacterium tumefaciens* on, control, 3158, 3504; effect of trizone on, 3504.
—, apple chlorotic leaf spot virus on, penetration of, 572.
—, *Blumeriella jaapii* on, control, 3302c; factors affecting, 2031f; forecasting of, 1808.
—, boron deficiency in, in U.S.A., causing rosette disease, 3503.
—, *Botrytis* on, control, 1925.

[Cherry], *Cercospora rubro-tincta* on, in Kashmir, 2759.
— chlorotic ring spot virus, serology of, 1194.
— destructive canker virus in Czechoslovakia, hosts of, indicators for, and transmission of, by pollen, 1177.
*— disease, resemblance of symptoms of, to cherry Pfeffinger disease and cherry sickle leaf viruses, 397b.
—, effect of fluorine on, 248.
— European rusty mottle virus on cherry in England, incidence of, 2530.
—, fungi on, list and review of, 247.
— Lambert mottle virus on cherry, *Prunus* necrotic ring spot virus associated with and separation of, 2216.
— leaf roll virus on cherry, testing for resistance to, 2217.
— — — — on rhubarb, 3294.
— little cherry virus on cherry in England, 2355g, 2530; incidence of, 2530.
— mottle leaf virus in U.S.A., comparison of plum pox virus with, 2210a.
— necrotic line pattern virus on cherry in England, incidence of, 2530.
— — ring spot virus, serology of, 1194, 2651.
— — — — —, see also Peach necrotic ring spot virus and *Prunus* necrotic ring spot virus.
— — rusty mottle virus on cherry, incidence of, 2530.
—, *Penicillium expansum* on, control, 1925.
— Pfeffinger disease, symptoms of cherry disease in Rumania resembling, 397b.
— — virus on *Chenopodium quinoa*, 2357i.
— — — on tobacco, 1193.
—, prune dwarf virus on, in England, 2530; Japan, 2212; effect of, in combined infections, 2355g; identification of, 2212; incidence of, 2530.
—, *Prunus* necrotic ring spot virus on, in England, 2530; U.S.S.R., 1195; effect of, in combined infections, 2355g; on yield, 2530; incidence of, 2530; non-occurrence of, on weeds in vicinity, 1621; serological demonstration of, 568; spread of and transmission of, by pollen, 3951.
—, *Pseudomonas cerasi* on, in Crimea, 857.
—, — *mors-prunorum* on, in Ireland, 2771; Switzerland, 1206, 1926; biology of, 1926; control, 1206, 1926, 1375o, 2771; hosts of, 1926; stability of, 2758; symptoms of, 1926, 2208.
—, — — cherry str. on, effect of addition of plum str. to inoculum, 2355a.
—, — *syringae* on, resemblance of strs. of, to *P. mors-prunorum*, 2355b.
—, raspberry ring spot virus on, testing for resistance to, 2217.
— rasp leaf disease on cherry in U.S.A., nematodes associated with, 3502.
— — — virus on peach, 1616.
— replant disease control, 1599.
—, *Rhizopus stolonifer* on, 3694; control, 1925.
— ring mosaic virus in U.S.S.R., description, incidence and symptoms of, 558.
— — mottle virus on cherry, incidence of, 2530.
—, rose mottled mosaic virus on, transmission of mechanically, 2765.
— rosette disease in U.S.A., boron deficiency causing and (?) cucumber mosaic virus str. associated with, 3503.
— rugose mosaic virus on cherry in England, incidence of, 2530.
[Cherry], *Sclerotinia* on, penetration by, 2357i.
—, — *laxa* on, in Hungary, 1404.
— sickle leaf, symptoms of cherry disease in Rumania resembling, 397b.
— spur virus on cherry, reaction to, 401c.
—, *Taphrina cerasi* on, in N.S.W., 2032d.
—, tobacco mosaic virus on, penetration of, 572.
*—, tomato bushy stunt virus on, in Canada, differentiation of, from type str., 1620, 2426.
—, *Valsa leucostoma* on, infection sites of, 856.
—, *Venturia cerasi* on, in Rumania, 577.
— virus diseases, testing for, 246, 3501.
— white spot virus in U.S.S.R., description, incidence, and symptoms of, 558.
*— (sour) yellows virus on cherry in Rumania, 397b.
— Laurel (*Prunus laurocerasus*), *Valsa cincta* on, in Czechoslovakia, biology and severity of, 2502.
— -plum, see *Prunus cerasifera*.
Chervil (*Anthriscus cerefolium*), *Anthriscus* yellows virus on, 3301l.
Chestnut (*Castanea*), *Endothia parasitica* on, in Greece, 2274; Yugoslavia, incidence of, 2275.
—, *Lactarius* forming mycorrhiza on, 424.
—, *Phytophthora cambivora* and *P. cinnamomi* on, in Greece, morphology and symptoms of, 2274.
Chick pea, see *Cicer arietinum*.
Chilli, see *Capsicum*.
China aster, see Aster.
Chinosol against *Pythium ultimum* on parsley, 714.
Chitin, soil micro-organisms on, ecology of, 3024b; selective isolation of, 3024a.
Chives (*Allium schoenoprasum*), *Pyrenochaeta terrestris* on, 2119.
—, *Puccinia allii* on, in Hong Kong, 3668c.
Chloramphenicol, effect of, on growth and mitochondrial structure of *Pythium ultimum*, 2059; on growth, pigmentation and ion absorption in maize, 2045; on *Xanthomonas campestris*, 1338.
Chlorine against *Fusarium roseum* and *F. solani* on cantaloupe, 2582.
2-chloro-4-(1′1′3′3′ tetramethyl) butyl-6-nitrophenol, systemic activity of, against *Erysiphe polygoni* on bean, 2598.
Chlorocholinchloride against *Cercosporella herpotrichoides* on wheat, 2678.
—, effect of, on *C. herpotrichoides*, 1093; on damping-off of barley and wheat, 1497; on fungi on wheat, 2461; on *Fusarium culmorum* on wheat, 1093; on *Leptosphaeria nodorum* on wheat, 1093, 2679.
2-chloro-4-(hydroxymercuri) phenol in combination against *Fusarium roseum* on turf, 551.
Chloroneb against *Corticium solani* on cotton, 2597.
—, effect of, on *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744.
1-chloro-2-nitropropane as soil disinfectant, 1718.
Chlorophenol against *Corticium solani* on potato, 1376b.
Chloropicrin against *Fusarium oxysporum* f.sp. *pisi* on pea, 951.
— as soil disinfectant, 859, 951, 1026a, 1599, 1675, 3127.
—, effect of, on *Arabis* mosaic virus on strawberry, 859.
—, evaluation of, as soil disinfectant, 17.
— in combination as soil disinfectant, 3074.

Chlorpropham, effect of, on *Botrytis tulipae* on tulip, 1590.
Chlortetracycline, effect of, on aster yellows virus on *Chrysanthemum carinatum*, 3669b.
Chrysanthemum, Alternaria chrysanthemi on, C.M.I. description of, 3030.
—, *Ascochyta* on, control, 3131.
—, — *chrysanthemi* on, effect of light and UV light on, 24.
— aspermy virus on *Chrysanthemum*, incidence and symptoms of, 3130.
—, *Botrytis* on, effect of euparen on, 3131.
—, — *cinerea* on, effect of cold storage on, 836; of *Itersonilia perplexans* on damage caused by, 390e.
—, cucumber mosaic virus on, serological relationships of, 73.
—, *Fusarium oxysporum*+*Meloidogyne hapla* on, effect of, on severity of, 225.
— green flower virus serologically related to stolbur virus, 3526.
—, *Itersonilia perplexans* on, effect of, on damage caused by *Botrytis cinerea* on, 390e.
— leaf mottling virus on *Chrysanthemum*, incidence of and symptoms of, 3130; particles in, 390j.
—, *Mycosphaerella ligulicola* on, effect of leaf washings from, on infection by, 1905; hosts of and variation in virulence of, 1154.
—, *Oidium chrysanthemi* on, effect of euparen on, 3131.
—, *Puccinia horiana* on, in England, 837; *France, 226; the Netherlands, 3132a, b; control, 837, 1580, 3131; incubation period of, 3132b; var. react. to, 226, 837, 1906; wind dispersal of, 3132a.
—, *Sclerotinia sclerotiorum* on, in U.S.A., 3467.
— stunt virus on *Chrysanthemum*, incidence and symptoms of, 3130.
— — — on *Senecio cruentus*, 2735.
—, tomato aspermy virus on, in the Netherlands, 3459b; effect of aluminium strips on, 1153; of, on seed production and non-transmission of, by seed, 72; serological detection of, 3459b; serological relationships of, 73.
—, *Verticillium alboatrum* on, infection, penetration and spread of, 2357k.
— virus, serological relationship of, to carnation 689 and sowbane mosaic viruses, 390k.
— — diseases, incidence and symptoms of, 3130; elimination of by meristem tip culture, 390o.
— — B on *Chrysanthemum* in the Netherlands, 3459b; effect of aluminium strips on, 1153; serological detection of, 3459b.
— *carinatum*, aster yellows virus on, effect of chlortetracycline on, 3669b.
— *cinerariifolium*, tomato aspermy virus on, danger of, to, 390k.
— *indicum*, tomato aspermy virus on, 224.
— *morifolium, Puccinia horiana* on, effect of heat treatment on, 1155.
— *viscidihirtum, Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
Ciborinia foliicola on *Salix*, 643d.
Cicadulina bipunctella not transmitting rice transitory yellowing virus, 3102.
— *pastusae* transmitting barley yellow dwarf virus, 2961.
Cicer arietinum, alfalfa mosaic virus on, in Iran, 3262, 3280.
— —, *Ascochyta rabiei* on, in Iran, 3262; Turkey, 3281; U.S.S.R., 2009; control, 1595, 3281; effect of colloidal sulphur and thiram on, 2009; production of toxic metabolites by, 1769k.
[*Cicer arietinum*], bean yellow mosaic and cucumber mosaic viruses on, in Iran, 3280.
— —, *Fusarium* on, effect of phenthiuram and phenthiuram molybdate on, 1595.
— —, — ?*lateritium* f.sp. *ciceri* on, in Iran, mode of entry and symptoms of, 3280.
— —, *Mycosphaerella rabiei* on, in W. Pakistan, 2924.
— —, *Phyllosticta rabiei* on, breeding against and var. react. to, 375.
Cicinnobolus cesatii parasitizing *Podosphaera leucotricha* on apple, 563.
Cineraria (*Senecio cruentus*), *Chrysanthemum* stunt virus on, 2735.
Circulifer tenellus transmitting beet curly top virus, 893, 1674, 3214.
Cirsium arvense, bean yellow mosaic virus on, in Bulgaria, 1460.
Citron (*Citrus medica*), citrus exocortis virus on, transmission of, by dodder, 523.
—, — stubborn disease virus on, symptoms of, 187.
Citrullus vulgaris, see Watermelon.
Citrus (including all *Citrus* hosts), *Alternaria citri* on, 195; control, 20321; effect of gamma radiation+SOPP on, 2717; factors affecting, 2718.
—, *Armillaria mellea* on, control, 1886.
*—, *Aspergillus fumigatus* on, in India, symptoms of, 2719.
—, (?)boron deficiency in, in Iran, 3063d.
— bud-union crease disorder in Mauritius and *Réunion, 1064b.
— cachexia virus on *Citrus macrophylla*, 1552.
— — -xyloporosis virus on citrus in France, Morocco, and Spain, distribution of, 814; study on, 186.
—, *Candida krusei* on, differentiation of, from and resemblance to *Geotrichum candidum*, 2720.
—, *Cercospora citri-grisea* and *C. gigantea* on, control, 2960c.
—, *Cladosporium oxysporum* on, in U.S.A., symptoms of, 1128.
— crinkle-scurf, effect of, on yield, 1557.
— crinkly leaf psorosis virus on citrus, fluorescence spectra of, 815.
— — — virus, lyophilization of, 2104.
— — — — on lemon, 2165b.
— — — — on orange, 2032m, 2165a, b.
— — — — on *Phaseolus aureus*, 2165c.
— cristacortis disease, 186; in Sicily, caused by sour orange stem pitting virus, 1882.
— decline in Brazil, symptoms of, 2168; India, Fe, Mn and Zn deficiencies associated with, 199.
—, *Deuterophoma tracheiphila* on, experimental reproduction of, 193.
—, *Diaporthe citri* on, 3114; in Trinidad, 817.
— dieback in India, Zn deficiency causing, 3444.
—, *Diplodia natalensis* on, 3114; effect of gamma radiation+SOPP on, 2717.
— diseases in France, Morocco, and Spain, 814; Trinidad, 817; U.S.A., 393f; distribution of, 814.
—, *Elsinoe fawcettii* on, method for predicting, 1073.
— endoxerosis, control, 1131.

[Citrus] exocortis virus in Italy, 1879.
— — — on citron, 523.
— — — on citrus, 186; in Aegean, 2163; France, 814; Japan, 2166*; Mauritius, 1064b; Morocco, 814; *Réunion, 1064b; Spain, 814; Trinidad, 817; colour test for, 2165; detection of, 1554; distribution of, 814; fluorescence spectra of, 815.
— — — on grapefruit, lemon and orange, 2165.
— — — on *Petunia* and Solanaceae, 523.
—, *Fusarium stilboides* on, in India, 818.
—, *Ganoderma applanatum* on, in Trinidad, 817.
—, *Geotrichum candidum* var. *citri-aurantii* on, effect of gamma radiation+SOPP on, 2717.
—, *Glomerella cingulata* on, in India, 818; effect of gamma radiation+SOPP on, 2717; of trace elements on, 2062; of vitamins on growth and sporulation of, 432.
— greasy spot in Trinidad, (?)*Cercospora citri-grisea* causing, 817.
— greening virus on citrus in India, 1877, 2167*; Mauritius and *Réunion, 1064b; Rhodesia, 3a; S. Africa, 524; distribution of, 1877; hosts of, 1877, 2167; symptoms of, 2167; transmission of, by bud and wedge grafting, 1877; by vectors, 2167.
— — — on orange, 524, 3441.
*—, *Guignardia citricarpa* on, in Kenya, 2a; Rhodesia, 1125; control, 1125, 1126, 1127; sources of inoculum of, 1125.
— impietratura virus on citrus in Aegean, 2163; Cyprus, 1123; France, Morocco and Spain, 814; distribution of, 814; fluorescence spectra of, 815; incidence of, 1881.
— — — on grapefruit, 188, 1123a, 1881.
— — — on lemon, 1123a.
— — — on orange, 1881, 3063d.
— infectious variegation virus, hosts of, 2715.
— — — —, lyophilization of, 2104.
— — — —, transmission of, mechanically, 2715.
— — — — on lemon, 2165b.
— — — — on orange, 2165a, b, 2716.
— — — — on *Phaseolus aureus*, 2165c.
— leaf mottle virus in the Philippines, transmission of, by vectors, 190.
— — — -yellows virus in the Philippines, causing decline, relationships of, and transmission of, by vectors, 1876.
—, lemon sieve tube necrosis virus on, in Aegean, 2163.
—, *Macrophomina phaseoli* on, in India, 196.
—, *Penicillium* on, control, 197.
—, — *digitatum* on, control, 3442, 3443; effect of gamma radiation+SOPP on, 2717; of ozone on, 2483; role of wounds in infection by, 1129.
—, — *italicum* on, 197; control, 3442; effect of gamma radiation+SOPP on, 2717; of ozone on, 2483.
— physiological gumming in Trinidad, 817.
—, *Phytophthora* on, in France, Morocco and Spain, distribution of, 814.
—, — *citrophthora* on, control, 1885; testing for resistance to, 2032j.
—, — *nicotianae* var. *parasitica* on, in Iran, 3063b; U.S.A., 192.
—, *Pseudomonas syringae* on, forecasting of, 1073.
— psorosis virus on citrus in the Aegean, 2163; Cyprus, 1123b; France, 814; *Mauritius, 1064b; Morocco, 814; *Réunion, 1064b; Spain, 814; Trinidad, 817; distribution of, 814; study on, 186.
[Citrus] Rio Grande gummosis in Trinidad, 817.
—, *Sclerotinia sclerotiorum* on, in Italy, 525.
—, soil fungi associated with, in Libya, 191.
—, *Speira* spores on roots of, 1023.
— stem pitting virus on citrus in Italy, 816; France, Morocco and Spain, distribution of, 814.
— — — — on orange, 816.
— storage disorders, 1745c, 2483.
— stubborn disease virus on citrus in Aegean, 2163; Italy, 1880; France, Morocco and Spain, distribution of, 814; hosts of and probable identity of, 187.
— — — — on orange, 1880.
— — -greening complex, 186; in Cyprus, 1123b.
— stylar-end rot control, 1131.
— tatter leaf virus, effect of supplements on infectivity of, 2102.
—, *Thielaviopsis basicola* on, symptoms of, 1884.
—, *Trichoderma viride* on, effect of gamma radiation+SOPP on, 2717.
— tristeza virus on citrus, 186; in Corsica, 1745b; Cyprus, 3113; Fiji, 2034a; France, 814; India, 522; *Mauritius, 1064b; Mediterranean region, 1878; Philippines, 190, 1551; Morocco, 814; *Réunion, 1064b; Spain, 814; Trinidad, 817; Turkey, 1796; distribution of, 814; hosts of, 522; indexing for detecting carriers of, 3113; transmission of, by vectors, 1551, 1796, 1878, 3113; use of indexed root stocks against, 1745b.
— — — on *Citrus excelsa*, 3113.
— — — on *Citrus macrophylla*, 1552, 3113.
— — — on *Citrus mitis*, 3113.
— — — on kumquat, 2034a.
— — — on lemon, 1552.
— — — on lime, 2034a, 3113.
—, — seedling yellows virus complex in Cyprus, 1123b; Philippines, 190; eradication of, 1123b.
— variegation virus on *Antirrhinum*, 2716.
— virus diseases in Aegean, 2163; Mediterranean basin, 1550, 1745a; Pacific Region, 1875; Philippines, 1876; isolation and purification of, 186; symptoms of, 1876; transmission of, mechanically, 186.
— woody gall virus, use of synergy to demonstrate variants of, 1553.
—, *Xanthomonas citri* on, in Argentina, 1556; Japan, 1887; *Mauritius and *Réunion, 1064b; control, 1130; forecasting of, 1073; phage sensitivity of isolates of, 1887.
— xyloporosis virus on citrus in Aegean, 2163; Trinidad, 817.
— yellow vein virus, detection of, 1554.
— — — — severe Tulare str., 1553.
Citrus aurantium, see Orange.
— *aurantifolia*, see Lime.
— *excelsa*, citrus tristeza virus on, in Cyprus, 3113.
— *limonia*, see Lemon.
— *macrophylla*, citrus cachexia virus on, in U.S.A., 1552.
— —, — tristeza virus on, in Cyprus, 3113; U.S.A., 1552.
— *maxima*, see Shaddock.
— *medica*, see Citron.
— *mitis*, citrus tristeza virus on, in Cyprus, 3113.
— *nobilis*, see Orange.
— *paradisi*, see Grapefruit.

[*Citrus*] *poonensis*, see Orange.
— *sinensis*, see Orange.
— *tankan*, see Orange.
— *trifoliata*, see *Poncirus trifoliata*.
CL–50, fungicidal activity of, 3686.
— versus copper-A, dithane Z–78, fernasan and perenox, 3686.
Cladosporium cladosporioides in the air in Wales, peak periods of, 6.
— *cucumerinum*, non-utilization of pisatin by, 1722.
— — on cucumber, 385, 3666n, o, p.
— *fulvum* on tomato, 1298, 5218.
— — on vegetables, 1995.
— —, study on, 2998.
— *herbarum* on beet, stored, 2903.
— — on cereals, 2030.
— — on *Hibiscus cannabinus*, 2437.
— — on poplar, 333.
— — on tobacco, 3565.
— *nitrariae* on *Nitraria schoberi*, 451.
— *oxysporum* on citrus, 1128.
— *paeoniae*, study on, 2998.
— *resinae*, ecology of, 930.
— —, growth of, on kerosenes, 3345.
— — in soil, 3344.
Clasterosporium carpophilum, see *Stigmina carpophila*.
Clavaria, effect of, on coniferous litter microflora, 2282.
Claviceps gigantea on maize, 3306.
— *microcephala* on *Pennisetum typhoides*, 980b, 1863.
— —, viability of sclerotia of, in relation to size and weight, 1863.
— *paspali*, preservation of, 3382.
— *purpurea* in U.S.S.R., hosts of, 1478.
— — on *Alopecurus pratensis*, 1170.
— — on *Festuca arundinacea* and *F. a.* × *Lolium multiflorum*, 1419.
— — on *F. rubra*, 1170.
— — on grasses, 118, 1170.
— — on *Lolium perenne*, 1104.
— — on *Poa pratensis*, 1170, 2509.
— — on rye, see Rye.
— — on wheat, 118.
— —, phosphorus content during development of, 3000.
— —, production of tryptamine by mutants of, 3001.
— —, role of exogenous succinate produced by, 3002.
— —, technique for preparing inoculum from sclerotia of, 2095.
Cleonia lusitanica, *Botrytis cinerea*, on, in U.S.A., introduced from abroad, 2437.
Clitocybe, effect of, on coniferous litter microflora, 2282.
— *tabescens* on timber, 979.
Clorox as disinfectant for pruning shears against *Erwinia amylovora*, 252.
Clove (*Eugenia aromatica*), *Cylindrocladium quinqueseptatum* can infect, 765.
Clover (*Trifolium*), bean yellow mosaic virus on, in Bulgaria, 1460; Czechoslovakia, 239; W. Australia, 240; identification of, 3483, 3484.
— big vein virus on *Agallia constricta*, 74.
— — — — on clover, electron microscopy of assembly sites of, 74.
— — — — —, see also Clover wound tumour virus.
—, *Cercospora zebrina* on, in Brazil, 1168b.
[Clover], *Curvularia trifolii* on, comparative study of, 1175.
— diseases in W. Australia, 240; bulletin on, 3485.
—, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
— enation (?)virus on broad bean and clover in Italy, transmission of, by dodder and grafting, 2515.
— — — on *Medicago lupulina*, 2515.
—, *Erysiphe martii* on, in Switzerland, 1809.
—, — *polygoni* on, in W. Australia, 240; control, 3139; differences in respiration in healthy and infected leaves, 2187.
—, *Fusarium* on, incidence of, 2157; relationship of clipping frequency to, 2516; of *Sitonia hispidula* to, 2517.
—, — *oxysporum* on, effect of cutting height on development of, 555; of frequent clipping on, 2188.
—, — *roseum* on, effect of frequent clipping on and factors affecting sporulation of, 2188.
—, — — 'Avenaceum' on, injury to roots of, 3141.
—, — *solani* on, effect of cutting height on development of, 555; of frequent clipping on, 2188.
—, groundnut rosette virus on, in Malawi, symptoms of, 960.
—, *Kabatiella caulivora* on, control, 3139.
—, *Leptosphaerulina trifolii* on, in W. Australia, 240.
—, lucerne mosaic virus on, in Czechoslovakia, 239, 2514; incidence of, 2514.
—, pea mosaic virus on, in Czechoslovakia, 239; W. Australia, 240.
—, — — — stem browning str. can infect, 2904.
—, — streak (American) virus on, identification of, 3484.
— phyllody virus on clover, control, 3139; effect of, on nodulation of, by *Rhizobium trifolii* in soil, 1172; inactivation of, by heat treatment and UV light, 3665a; time of infection of, 2652; transmission of, by vectors, 3665a.
— — — on strawberry, 2652.
—, *Physoderma trifolii* on, in W. Australia, 240.
—, *Pseudopeziza* on, control, 3139.
— 'purple patch' in W. Australia, fungi associated with, 241.
— red leaf virus disease, symptoms of and transmission of, by vectors, 3140.
—, —, mottle virus on clover in Czechoslovakia, 239.
—, —, necrotic mosaic virus on clover in Czechoslovakia, 239.
—, —, vein mosaic virus, serology of, 1048.
—, —, — — — on clover in Czechoslovakia, 239; identification of, 3484.
—, —, — — — on *Gomphrena globosa*, 1461.
—, —, — — — on pea, 3626.
—, *Sclerotinia trifoliorum* on, in England, 242; Poland, 2189; control, 3139; effect of soil micro-organisms on, 1173a; *Mitrula sclerotiorum* associated with, 2189; resistance to, 242.
— spotting, effect of light and temp. on and resemblance of, to *Leptosphaerulina trifolii*, 238.
—, *Stagonospora recedens* on, in Brazil, 1168b.
—, subterranean clover stunt virus on, in W. Australia, 240.

[Clover], tar vapour injury to, 1072.
—, tobacco ring spot virus on, identification of, 3484.
—, *Uromyces flectens* on, in Norway, 1174.
—, — *nerviphilus* on, rejection of, 1174.
—, — *trifolii* on, in W. Australia, 240; rejection of, 1174.
—, — *trifolii-purpurei* on, in Switzerland, 1809.
—, — *trifolii-repentis* on, in Norway, 1174.
— virus disease in Hungary, related to bean yellow mosaic virus, 1743b.
— — diseases, transmission of, by seed, 3482.
—, white, mosaic virus on clover in Czechoslovakia, 239; isolation, physical properties and transmission of, 3481.
— wound-tumour virus, electron microscopy of accumulations of, in vector, 2428.
— — — — not related serologically to reoviruses, 2429.
— — — — on *Agallia constricta*, 3391.
— — — —, see also Clover big vein virus.
*—, *Xanthomonas alfalfae* on, in Rumania, morphological, cultural, and biochemical features of, 1912.
— yellow mosaic virus, papaw mosaic virus grouped with, 2223.
— — — —, serology of, 2643.
CM 632 against *Guignardia citricarpa* on orange, 1127.
C.M.I. descriptions of pathogenic fungi and bacteria, set 14, 42; sets 15 and 16, 1035; set 17, 3030; sets 18 and 19, 3731.
Coal tar oil as timber preservative, 1989.
Cobalt superphosphate, effect of, on rhizosphere microflora in relation to *Verticillium* on cotton, 213.
Coccomyces heterophyllae on *Tsuga heterophylla*, 1696.
**Coccus viridis*, *Entomophthora fresenii* on, in India, 414.
Cochliobolus carbonum, genetics of toxin production and pathogenicity, 1516.
— — on bean, 2333.
— — on Gramineae, 3480.
— — on maize, see Maize.
— — on *Phaseolus limensis*, 2333.
— — on potato, 875.
— — on soybean, 2333.
— *cynodontis* on *Cynodon dactylon*, 552.
— *geniculatus* on pine, 2863b.
— *heterostrophus* on maize, 2698.
— *lunatus* on rice, stored, 520.
— — on wheat, 2132.
— —, sclerotial formation by, 431.
— *miyabeanus*, effect of Cu, Zn, and Hg compounds on, 1545; of inhibitors from seedcoats of plants on germination of, 1406.
— — in air over rice fields, 1865a.
— — in soil, 3022.
— —, inhibition of, by aureofungin, 3341.
— — on rice, see Rice.
— *nodulosus*, inhibition of, by aureofungin, 3341.
— *sativus*, as test fungus, 3730.
— —, effect of diurnal temp. fluctuations on growth of, 1413; of natural soil on survival of, 1021; hosts of, 1094.
— — in rhizosphere of maize, 507.
— — in soil, see Soil.
— —, N utilization by, 1769d.
— — on *Agrostis palustris*, 2185.
— — on barley, see Barley.
**[Cochliobolus sativus]* on bean, 3268.
— — on cereals, 1077, 1477.
*— — on rice, 2032a.
— — on wheat, see Wheat.
— —, production of unidentified ninhydrin positive substance by, 1770.
— — +*Pyrenophora teres* on barley, 2690.
— *setariae* on *Setaria italica*, 2154.
— *spicifer*, effect of diurnal temp. fluctuations on growth of, 1413.
*— — on cotton, 1144.
— — on wheat straw, 124.
— *victoriae*, genetics of toxin production and pathogenicity, 1516.
— — on bean, 3268.
— — on oats, see Oats.
— —, symptomless carrier of disease in, 2057.
Coconut (*Cocos nucifera*) broken leaf in Surinam, (?)new disease and symptoms of, 3530.
— cadang-cadang disease in the Philippines, necessity for replanting, 1223; technique for transmitting, 1637.
— Kribi disease in Cameroon, new *Valsa* sp. causing, 283.
— lethal yellowing, reproduction of, by mechanical inoculation, 1637, 2802.
—, *Pestalotiopsis palmarum* on, in Cambodia, 3528.
— root wilt disease, anatomical derangement in, 3529.
—, S deficiency in, in Papua and New Guinea, control, effect of on copra quality and yield, symptoms of, 2542.
—, *Valsa batangae* on, in Cameroon, causing Kribi disease, *Cytospora batangae* conidial state of, 283.
Cocos nucifera, see Coconut.
Coelomomyces indicus on *Anopheles gambiae*, 3685b.
— *punctatus* on *Anopheles quadrimaculatus*, 3685a.
Coffea, see Coffee.
Coffee (*Coffea*), assessing spray efficiency on, 1888.
*—, *Botrytis cinerea* on, in Rhodesia, causing warty disease, 2359a.
—, *Capnodium* on, in Guatemala, 1562.
*—, *Cephalosporium zonatum* on, in Costa Rica, 1560.
—, *Cercospora coffeicola* on, in Colombia, 1133; Malawi, 399d; control, 2723b, 2960d; effect of proprietary formulations on, 3445; factors affecting, 399d, 1133; nutritional requirements of, 1561; spore dispersal of, 399d; spraying against, 2169; strains of, 2723a.
—, effect of Cu fungicides and fertilizers on yield of, 1563.
—, *Fusarium* on, in Malawi, 399d; Rhodesia, causing bark disease, 3f.
*—, — *solani* var. *minus* on, in India, 202.
—, — *stilboides* on, 1558; in Malawi, 399d, 1891; factors affecting, 891; spread of, 1891; weeds in relation to, 399d.
—, *Gloeosporium* on, in Papua and New Guinea, *Glomerella cingulata* perfect state of, and resemblance of to coffee 'weak spot' in Kenya, 203.
—, *Glomerella cingulata* on, 203; in East Africa, 1379f; Kenya, 2724; control, 820, 1379f, 1559, 2724, 3116; effect of metabolic inhibitors on susceptibility to, 1558; factors affect-

ing, 3116; sporulation of, 1379f; technique for spraying against, 2725; uneven distribution of, 1374h.
[Coffee], *Hemileia vastatrix* on, in Papua, 2721; Tanzania, 1890; control, 201, 820, 1559, 2169, 2170, 2722; cytology of, 3115; effect of light on germination and infection by, 1890; of proprietary formulations on, 3445; of tween 80 and teepol on, 1559; eradication of, 2721; genetics of, 1132; germination of, 526; non-susceptibility of shade trees to, 1889; outbreaks of, 2721.
—, *Meliola* on, in Guatemala, 1562.
—, *Myrothecium roridum* on, control, 3446.
—, *Pellicularia koleroga* on, effect of proprietary formulations on, 3445.
— phloem necrosis, coffee root rot in Guatemala (?) identical with, 1562.
—, *Rhizopus stolonifer* on, 1558.
— ring spot virus on coffee in the Philippines, incidence, symptoms, and transmission of, by seed, 200.
— root rot in Guatemala, (?) identical with phloem necrosis, 1562.
—, *Rosellinia* on, in Guatemala, symptoms of, 1134.
—, — *bunodes* on, in Guatemala, control and symptoms of, 1134; effect of soil humidity and pH on mycelial growth and infection, 1135.
—, — *pepo* on, effect of soil humidity and pH on mycelial growth and infection, 1135.
—, *Sclerotium rolfsii* on, 1558.
— 'weak spot' in Kenya, coffee leaf spot in Papua and New Guinea resembling, 203.
— grounds against *Fusarium solani* f.sp. *phaseoli* on bean, 3669g.
Cola chlamydantha virus, classified with cacao swollen shoot virus, 1074.
Coleosporium asterum on aster, pine, *Solidago altissima*, and *S. canadensis*, 3235.
— *paederiae* on pine, 2286, 3236.
Collembola transmitting *Ceratocystis fimbriata*, 1470a.
Colletotrichum atramentarium on potato, see Potato.
— — on tomato, see Tomato.
— *capsici*, studies on pectolytic enzymes of, 1769h.
— *coccodes*, antagonism of mycolytic soil bacteria to, 2074.
— —, C.M.I. description of, 42.
— —, effect of culture filtrate of *Bacillus cereus* var. *mycoides* on, 3698.
— —, inhibition of, by actidione, 3698.
— — on hemp, 1900.
— — on potato, 93.
— — on tomato, see Tomato.
— *crassipes* on *Hevea* rubber, 3059b.
— *dematium* on ash, 325.
*— — on groundnut, 961.
— — on *Hevea* rubber, 3059b.
— —, utilization of monosaccharides by, 26.
— *fragariae* on strawberry, 2533.
— *gloeosporioides* f.sp. *alatae* on *Dioscorea alata*, 2952.
— — — — on yam, 2062.
— *gossypii* on cotton bolls, 531.
— *graminicola*, C.M.I. description of, 42.
*— — in India, hosts of, 3099.
— — on barley, 140.
— — on maize, 3744.
— — on sorghum, 806, 3744.
[*Colletotrichum graminicola*], similarity of, to *Glomerella tucumanensis* on sugarcane, 3099.
— *hibisci* on *Hibiscus cannabinus*, 3456.
— *higginsianum* on *Isatis tinctoria*, 2437.
— *lagenarium*, electron microscopy of, 2946, 3657.
— —, extraction of N compounds from conidia of, 3725.
— — on cucumber, see Cucumber.
— — on watermelon, 717.
— *lindemuthianum* as test fungus, 3690.
— —, non-utilization of pisatin by, 1722.
— — on bean, see Bean.
— —, storage in liquid N, 2365.
— *linicola* on flax, see Flax.
— *musae* associated with *Pseudomonas solanacearum* on banana in Colombia, 2535.
— — on banana, see Banana.
— — on tropical fruits, 1628.
— *nicotianae* on tobacco, 2605.
— *nigrum* on *Capsicum*, 720.
— *nobile* on *Laurus nobilis*, 2501.
— *spinaciae* on spinach, 3261.
— *tabacum* on tobacco, 399b, 885.
— *truncatum* on soybean, 1939.
Colloidox against *Hemileia vastatrix* on coffee, 1559.
**Collybia velutipes* on horse-chestnut, 3579.
— — on timber, 679.
Colocasia esculenta, *Macrophomina phaseoli* on, in India, 2953.
— —, *Phytophthora colocasiae* on, resistance to, 2028.
Colombian *Datura* virus, properties and serology of, 2647.
Compositae, *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, beet western yellows virus on, 944.
—, Erysiphaceae on, in U.S.S.R., 1037.
—, *Erysiphe cichoracearum* on, C.M.I. description of, 1035b.
Compost disinfection by mylone, nabam, and vapam, 714.
Compounds C and J, inhibition of fungi by and production of, by *Anagallis arvensis*, 744.
Conferences, congresses, symposia, etc. [see also Reports], on air pollution damage to plants, 3700; American Phytopath. Soc. (Caribbean Div.), 2960; (Southern Div.), 3305; (Pacific Div.), 401; (Potomac Div.), 3669; (N.E. Div.), 2590; American Potato Association (51st), 597; British Insecticide and Fungicide (4th), 1375; Canada Phytopath. Soc., 978; cryptogams of Central Asia and Kazakhstan, Tashkent, 3303; enrichment culture and mutant selection, Göttingen, 2087; FAO on crop losses, Rome 1967, 389; host-parasite relationships in plant diseases, Calcutta, 731; Wageningen, 3666; (Italian) Book Restorers, 1408; IUFRO (14th) Munich, 921; insect pathology and microbial control, Wageningen, 737; Latin American on Agricultural methods, Venezuela, 3306; Marine mycology, Bremerhaven, 2955; microenvironment and biology of soil, 3364; International Agricultural Aviation, (3rd), Netherlands, 392; International on Nematology (8th), 2589; International on Phytiatry, Sanremo, 2356; International on phytopharmacy and phytiatry (19th), 1374; International Plant Protection, (6th), Vienna, 393, 1002, 1404; Plant Protection (17th), Budapest, 1743; Plant Protection (36th),

Germany, 395; plum pox virus, 2760; maize, millets, rice and sorghum, Chandigarh, India, 1113; physiology of fungi, Chandigarh, India, 1769; Plant disease control, Delhi, 2430; potato virus degeneration, Vladivostok, 599; rice diseases, Tokyo, 2480; rice virus diseases, I.R.R.I., 169; Tea Research Institute (Centennial), Ceylon, 620; tobacco virus diseases, 306; vegetable growing under glass, The Hague, 391.
Coniella diplodiella on grapevine, 1935.
Coniferae, *Adelopus* needle-cast fungi on, identification and taxonomy of, 2283.
—, *Armillaria mellea* on, 1315.
—, *Cercospora cryptomeriae* on, in Japan, (?)introduced from N. America, synonymous with *C. sequoiae*, 1327.
— diseases in U.S.S.R., 1314.
—, effect of basidiomycetes on litter microflora, 2282.
—, *Fomes annosus* on, effect of resin on resistance to and technique for studying, 3229; revision of Forest. Comm. Leafl. on, 664.
—, *Herpotrichia nigra* on, ecology of, 663.
—, *Rhizoctonia* spp. on, 1695.
—, *Rhizosphaera, R. kalkhoffii*, and *R. pini* on, in Japan, taxonomy of, 1313.
—, Uredinales on, in India, 644.
Coniophora puteana in soil, 648.
— — on oak and pine, 1702.
— — on spruce, 3244.
— — on *Tilia*, 1702.
— — on timber, see Timber.
Coniothyris cydoniae on quince, 1179.
Coniothyrium minitans, effect of quintozene on, 1173c.
— — on fungal sclerotia, 1173b.
Convolvulus arvensis, stolbur virus on, symptoms and transmission of, by vectors, 1451.
Copper against *Capnodium* on coffee, 1562; *Cercospora citri-grisea* on citrus, 2960c; *C. coffeicola* on coffee, 2960d; *Corynebacterium michiganense* on tomato, 321; *Cycloconium oleaginum* on olive, 1745s; *Exobasidium vexans* on tea, 620b; *Glomerella cingulata* on coffee, 1379f, 2724; *Gnomonia leptostyla* on walnut, 2280; *Hemileia vastatrix* on coffee, 201; *Meliola* on coffee, 1562; *Pestalotia* on pine, 3239; *Phytophthora infestans* on tomato, 635; *Polystigma rubrum* on plum, 1200; *Pseudomonas phaseolicola* on bean, 2327; *Rosellinia* on coffee, 1134; *Scirrhia pini* on pine, 351; *Xanthomonas juglandis* on walnut, 2280.
— contamination of field latex and solid rubber, 2824.
— deficiency in apple, 2521.
—, effect of, on coffee yield, 1563; on growth of *Helminthosporium*, 2063; on *Tilletia caries* on wheat, 2127; on *Xanthomonas oryzae* on rice, 1113s.
—, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
— injury to oil palm, 3181.
—, toxicity of, to maize, 1113a; to pine, 2865; to rice, 1113s.
— versus dithiocarbamates, 1200; *o*-difolatan, 2724; makrolin, 2983.
— in combination against *Botrytis cinerea* on grapevine, 1743i; *Cercospora citri-grisea* on citrus, 2960c; *Plasmopara viticola* and *Uncinula necator* on grapevine, 1743i.
— -A versus CL–50, 3686.
[Copper] 50 blue against *Hemileia vastatrix* on coffee, 2722; *Leptosphaeria salvinii* on rice, 811.
— chloride in combination against *Nectria galligena* on apple, 2200.
— compounds against *Cercospora beticola* on beet, 1341; *Peronospora tabacina*, 2834; *Phytophthora infestans* on potato, 1235a; *Pseudomonas angulata* and *P. tabaci* on tobacco, 2834; *Venturia inaequalis*, 397k.
— — injury to apple, 397k.
— oxide against *Glomerella cingulata* on coffee, 3116; *Myrothecium roridum* on coffee, 3446; *Phytophthora cambivora* and *P. cinnamomi* on chestnut, 2274; *Scirrhia pini* on pine, 919c.
— —, toxicity of, to *Phytophthora infestans* on potato, 1237.
— oxychloride against *Alternaria citri* on orange, 20321; *Botrytis cinerea* on grapevine, 3172; *Cylindrosporium maculans* on mulberry, 1630; *Deuterophoma tracheiphila*, 1883b; *Elsinoe ampelina* on grapevine, 1634; *Marssonina brunnea* on poplar, 2853; *Mycosphaerella sentina* on pear, 1609; *Nectria cinnabarina* on currant, 2031e; *Peronospora tabacina* on tobacco, 2834; *Phytophthora infestans* on potato, 607; on tomato, 1677; *Plasmopara viticola*, 2792; *Pseudomonas angulata* and *P. tabaci* on tobacco, 2834; *Puccinia pringsheimiana* on gooseberry, 1927; *Scirrhia pini* on pine, 919c; *Septoria apiicola* on celery, 2023; *S. lycopersici* on tomato, 1377i; *S. ribis* on gooseberry, 2772; *Xanthomonas juglandis* on walnut, 918; *X. oryzae* on rice, 1872; *X. rubi-idaei* on raspberry, 3510; as seed treatment for onion bulbs, 2339.
— —, constituent of blitane, new, 1236.
— —, effect of alone and with streptomycin sulphate on *Pseudomonas syringae* on pear, 2757.
— — ineffective against *Phytophthora infestans* on potato, 3e.
— —, phytotoxicity of, 1883b.
— — in combination against *Fabraea maculata* on pear and quince, 3495; *Helminthosporium heveae*, 880c; *Peronospora tabacina*, 2834; *Plasmopara viticola*, 2791, 2792; *Pseudomonas angulata* and *P. tabaci* on tobacco, 2834; *Scirrhia pini*, 919c; *Septoria apiicola*, 2023.
— — — —, use of, on currant, potato, and tomato, 19.
— sandoz in combination against *Xanthomonas citri* on citrus, 1130.
— soap emulsion against *Microsphaera alphitoides* on oak, 910.
— sulphate against fungi on groundnut, 1731c; *Phytophthora capsici* on *Capsicum*, 2949; *Plasmopara viticola*, 1743i; *Rhacodiella vitis* on grapevine, 1934; rice 'branca', 2481; as timber preservative, 678.
— — in combination against *Helminthosporium heveae*, 880c; *Nectria galligena* on apple, 2200; *Xanthomonas citri* on citrus, 1130; as seed treatment for rice, 3341.
Coprinus micaceus on birch, 2890.
Corchorus capsularis and *C. olitorius*, see Jute.
Cordyceps in Norway, 992.
— *militaris*, production of perithecial stromata by, 2595.
Coriander (*Coriandrum sativum*), *Anthriscus* yellows virus on, 33011.

[Coriander], *Protomyces macrosporus* on, control, 2430.
—, *Pseudomonas* on, 3299k.
—, *Ramularia coriandri* on, in U.S.S.R., symptoms of, 278.
—, *Septoria umbelliferarum* on, in U.S.S.R., 1464.
— virus diseases, symptoms of, 3299e.
Corm diseases, bulletin on, 832.
Coronilla varia, Fusarium roseum on, control, 541.
Corticium fuciforme on grasses, 394i.
— — on turf, 1592.
— *invisum* on tea, 3203.
— *praticola* in soil, 1028.
— (?)*psorosum* associated with timber pink stain, 1333.
— *sasakii* on rice, see Rice.
— *solani*, effect of *Bacillus subtilis* and *B. licheniformis* on growth and sclerotium formation by, 3363; of chemicals on heterokaryosis in, 2629; of thioaceto-hydroxamic acids on growth of, 994.
— — in rhizosphere of cotton, 27.
— — in soil, see Soil.
— —, inhibition of, by difolatan, and quintozene, 3305a; by *Streptomyces rimosus*, 978d.
— —, modes of penetration by different isolates of, 2591.
— —, mutation in, 1444.
— —, natural melanins of, 3351.
— —, number of nuclei in hyphal cells of, 3040.
— — on bean, see Bean.
— — on broad bean, 126, 3633.
— — on cabbage, see Cabbage.
— — on carnation, 222.
— — on *Carthamus*, 1939.
— — on cauliflower roots, 3620.
— — on cereals, 2584l.
— — on Coniferae, 1695.
— — on cotton, see Cotton.
— — on flax, 3125, 3458.
— — on forest trees, 2284.
— — on groundnut, 1731a.
— — on hemp, 2229.
— — on *Hibiscus cannabinus*, 2730.
— — on oil palm, 596.
— — on *Phaseolus aureus*, 2008, 2332, 2917.
— — on pine, see Pine.
— — on potato, see Potato.
— — on radish, 2591.
— — on rice, 3108.
*— — on safflower, 282.
— — on sesame, 1939.
— — on soybean, 1939, *3635.
— — on tobacco, 399b.
— — on tomato, see Tomato.
— — on wheat, 126.
— —, P-32 accumulation in sclerotia of, 427.
— —, storage in liquid N, 2365.
Corylus, Gloeosporium on, in Italy, morphology and symptoms of, 650.
Coryne sarcoides on spruce, 2882b.
Corynebacterium, serological relationships of, 2974.
— *fascians*, cytokinins in RNA of, 2374.
— — on strawberry, 861, 1626, 1929.
— —, serological relationships of, 2974.
— *flaccumfaciens* var. *violaceum* on bean, 2325, 2326.
— *insidiosum* on lucerne, 2032g, *3144.
— *michiganense*, hosts of, 1972.
— — on *Lycopersicon pimpinellifolium*, 2267.
[*Corynebacterium michiganense*] on tomato, see Tomato.
— *sepedonicum*, effect of purines and pyrimidines on growth of, 2375b.
— —, nutritional requirements of, 4b, 2375a.
— — on potato, 730a.
— *tritici* on wheat, 3089.
Coryneopsis microsticta, conidial state of *Griphosphaeria corticola*, 1603.
Corynespora cassiicola on cotton, 532.
— — on *Eucalyptus grandis*, 654.
— — on sesame, 1939.
Coryneum beijerinckii, see *Stigmina carpophila*.
*— *thujinum* on *Thuja plicata*, 2562f.
Cotton (*Gossypium*), *Achromobacter* on, not causing boll rot, 1576.
—, actinomycete str. 1952 on, effect of UV light on, 211.
—, *Aerobacter aerogenes* on, 3456.
—, *Alternaria* on, in Brazil, associated with boll rot, 821; effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, — *macrospora* on, in Formosa, 1143; Nigeria, 2587d; control, 1143.
—, *Ascochyta* on, in Brazil, associated with boll rot, 821.
*—, — *gossypii* on, in Kenya, 2a.
—, *Aspergillus flavus* on, associated with fluorescence of seed, 1574; technique for determining pathogenicity of, in cotton boll rot complex, 1575.
—, — *melleus* in rhizosphere of, antagonism of, to, 3447.
—, — *niger* on, technique for determining pathogenicity of, in boll rot complex, 1575.
—, — *terreus* in rhizosphere of, antagonism of, to, 3447.
—, *Bacillus* on, not causing boll rot, 1576.
—, — *pumilus* on, 3456.
—, — *subtilis* on, determining pathogenicity of, in boll rot complex, 1575.
—, bacteria on, not causing boll rot, 1576.
— boll rot in Brazil, 821; Formosa, 1143; control, 1143; *Diplodia gossypina* associated with, 1143; fungi associated with, 821, 3122; storage of, 533; technique for determining pathogenicity of organisms involved in, 1575.
—, *Botryodiplodia* on, in Brazil, associated with boll rot, 821; inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Cephalosporium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on cotton by, 1570.
—, *Cercospora gossypina* on, in French W. Africa, 532.
—, — *lhuillieri* on, cultural and morphological characters of, 1573.
—, *Chaetomium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Cladosporium* on, in Brazil, associated with boll rot, 821.
*—, *Cochliobolus spicifer* on, in India, incidence and symptoms of, 1144.
—, *Colletotrichum gossypii* on bolls of, in India, *Glomerella gossypii* perfect state of, 531.
—, *Corticium solani* in rhizosphere of, antagonism of *Aspergillus flavus*, *A. terreus*, and *Bacillus subtilis* to, 27.
—, — — on, in Upper Volta, 3456; adaptation of, to fungicides, 420; control, 1401, 3452;

effect of *Bacillus* on virulence of, 528; of root temp. on hypocotyls of, as source of nutrition for, 3453; evaluating fungicides against, 2597; factors affecting, 528; resistance of, to, 527; of, to quintozene, 3015.
[Cotton], *Corynespora cassiicola* on, in French W. Africa, morphology of, 532.
—, *Curvularia* on, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, *Diplodia* on, in Brazil, associated with boll rot, 821.
— diseases, 2171; in Italy, control, 1807.
—, effect of microelements on rhizosphere microflora in relation to *Verticillium* wilt, 213.
—, *Eremothecium ashbyi* on, C.M.I. description of, 3731b.
—, *Erwinia aroideae* on, 3456; causing boll rot, 1576.
—, fungi on roots of, technique for observing, 3121.
—, *Fusarium* on, in Brazil, 821; Egypt, 205; associated with boll rot, 821; collection of papers on (Tashkent), 3118; effect of soil conditions on, 205; var. react. to, 1893.
—, — *equiseti* on seed of, in Israel, 1466.
—, — *oxysporum* on, inhibition of *F. oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on cotton by, 1570; resistance mechanism in, 2435.
—, — — f.sp. *vasinfectum* on, in Brazil, 822; Central African Republic, 3456; U.S.S.R., 1142, 1568; control, 1568; effect of *Meloidogyne incognita* on incidence of, 822; of nemagon on, 1895; of phenolic compounds of, on production of cellulose, 2727; of physical factors of soil on incidence of, 1565; of sand in soil on incidence of, 822; of soil temp. on interrelationship of resistance and susceptibility to, 3305d; of $ZnSO_4$ on, 2726; inhibition of, by associated fungi, 1570; production of proteases, trans-eliminases and fusaric acid by, 3451; proteins in, 206; relationship of manure and N fertilizers to, 204; review of literature on control and incidence of, 1142; technique for inoculating, 1567; variation in ^{32}P uptake in presence of different C sources, 530; var. react. to, after stem and root inoculation, 1894; var. react. to, 1566.
—, — *roseum* on, effect of bacteria on virulence of, 528.
—, — *solani* on, relationship of manure and N fertilizers to, 204.
—, *Gibberella fujikuroi* on, technique for determining pathogenicity of, in boll rot complex, 1575.
—, *Gliocladium* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Glomerella gossypii* on, in Brazil, 821; India, 531; *Rhodesia, 2588a; associated with boll rot, 821, 3122; factors affecting, 823; inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570; perfect state of *Colletotrichum gossypii*, 531; var. and spec. react. to, 215.
—, *Gonatorrhodiella* on, inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
— growing in irrigated soils (Tashkent), literature for 1965, incl. diseases, 2171.
[Cotton] leaf curl virus on cotton, genetics of, 1564.
—, *Macrophomina* on, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, — *phaseoli* on, associated with *Cercospora lhuillieri*, 1573.
*—, *Microxyphiella* on, 216.
—, — *hibiscifolia* on, in India, hosts of, 3454.
—, *Monilia* on, in Brazil, associated with boll rot, 821.
—, *Moniliopsis aderholdii* on, form of *Corticium solani*, 455.
*—, *Mycosphaerella areola* on, in India, perithecial state of *Ramularia gossypii*, 1896.
—, *Nematospora gossypii* on, C.M.I. description of, 3731b.
—, *Nigrospora* on, determining pathogenicity of, in boll rot complex, 1575.
—, *Penicillium nigricans* in rhizosphere of, antagonism of, to, 3447.
—, *Phakopsora gossypii* on, C.M.I. description of, 3731a.
—, *Phlyctaena gossypii* on, associated with *Cercospora lhuillieri*, 1573.
—, *Phoma* on, in Brazil, associated with boll rot, 821; with *Cercospora lhuillieri*, 1573; inhibition of *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* by, 1570.
—, *Phomopsis* on, in Brazil, associated with boll rot, 821.
—, *Phyllosticta gossypina* on, in India, 826.
—, *Phymatotrichum omnivorum* on, in U.S.A., factors affecting, 827.
—, *Physalospora rhodina* on, determining pathogenicity of, in boll rot complex, 1575.
—, *Pseudomonas* on, not causing boll rot, 1576.
—, *Pythium* on, pathogenesis by, 1571.
—, — *aphanidermatum* on, pathogenesis by, 1572.
—, — *debaryanum* on, pathogenesis by, 1571, 1572.
—, — *paroecandrum* on, pathogenesis by, 1571.
—, — *ultimum* on, pathogenesis by, 1571; resistance to, 527.
—, *Ramularia gossypii* and *Rhizoctonia* on, in Brazil, associated with boll rot, 821.
— root rots control, 2492.
— seed treatment, effect of, on deterioration of, during humid storage, 2176.
—, *Thielaviopsis* on, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
—, — *basicola* on, effect of bacteria and nematodes on virulence of, 528; factors affecting, 528; spec. react. to, 527.
—, — — + *Verticillium alboatrum* on, factors affecting virulence of, 528.
—, *Trichoderma viride* in rhizosphere of, antagonism of, to, 3447.
—, *Verticillium* on, in U.S.S.R., 2489; collection of papers on, 3118; control, 3118, 3303; effect of alternate crops on, 2489, 2728, 3118; Mo on, 2488; of Mo and Zn on resistance to, 212; of seed quality on incidence of, 2174; factors affecting, 2489; incidence of, 2489; susceptibility to, 478; var. react. to, 1893.
—, — *alboatrum* on, control, 2486, 3117; distinction of *V. fumosum* from, 3450; effect of bacteria and nematodes on virulence of, 528; of insecticides on incidence and severity of, 2485; of soil temp. on interrelationship of

resistance and susceptibility to, 3305d; of, on rate of photosynthesis in, 1892; enzymatic and respiratory studies with, 2172; inhibition of, by associated fungi, 1570; quantitative studies on, 824; spec. react. to, 527; technique for evaluating resistance to, 825.
[Cotton, *Verticillium alboatrum*] + *Fusarium roseum* and +*Thielaviopsis basicola* on, factors affecting virulence of, 528.
—, — *dahliae* in debris of, determination of infection by, 3448.
—, — — on, in U.S.S.R., 1139, 1568; antagonism of actinomycetes to, 210; carbohydrate metabolites secreted by, 207; control, 529, 1138, 1568, 3120; development of microsclerotial form of, 3449; of, in soil, 1137; of, in tissues of, 2173; distinction of *V. fumosum* from, 3450; effect of antagonistic fungi on, 3447; of bacteria-enriched compost on, 1141; of deep and shallow inter-row treatment on, 2729; of quintozene on, 1569; maintenance of virulence of, 1137; penetration by, 209; production of antibiotic antagonistic to, by actinomycetes in soil, 1139; proteins in, 206; spread of, in tissues of, 2173; technique for detecting degree of resistance to, 208.
—, — *fumosum* on, distinction of, from other *V.* spp. on cotton, 3450.
*—, — *nigrescens* on, 214.
—, — *nubilum* on, similarity of *V. fumosum* to, 3450.
—, — *tricorpus* on, distinction of *V. fumosum* from, 3450.
—, *Volutella* on, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum*, 1570.
— wilt, apparatus for detecting, 1136.
*—, *Xanthomonas celebensis* var. *gossypii* on, in India, 534a; inhibition of, by *Streptomyces anulatus*, 534b; morphological and physiological characters of, 534a.
—, — *malvacearum* on, 218; in Brazil, 821; C. African Republic, 3456; Iran, 3063d; Ivory Coast, 3456; U.S.A., 1146; associated with boll rot, 821; control, 828; development of lines for differentiating races of, 3124; distribution and penetration of antibiotics in tissues of, 3455; effect of early sowing on, 217; of *Flavobacterium* on, 1897; eradication of, 1146; inhibition of, by bacterium, 1145; not causing boll rot, 1576; phytoncide activity in, 2175; susceptibility to, 3456; technique for determining pathogenicity of, in boll rot complex, 1575; variation in host-parasite relationship of, 3123; var. react. to, 829.
Courgette (*Cucurbita pepo*) virus disease in Kenya, 2959b.
—, see also Vegetable Marrow.
Cowania mexicana, effect of H_2O_2 on seeds of, 1980.
Cowpea (*Vigna unguiculata*) chlorotic mottle virus, properties of, 3277, 3278.
— — — — on cowpea, 3276; hosts of and specific infectivity of, 3392.
— — — +cucumber mosaic viruses on cowpea, 3276.
—, citrus infectious variegation virus on, 189; transmission of mechanically, 2715.
—, cucumber mosaic virus on, 3611; peroxidase isozymes in, 2112.
— diseases in Iran, 3262.
*[Cowpea], *Entyloma vignae* on, in Brazil, symptoms of, 2337.
*—, *Isariopsis griseola* on, in Venezuela, 2007.
—, lemon crinkly leaf virus can infect, 2032m.
— mosaic virus, components and infectivity of, 3279.
— — —, conference paper on, 3306.
— — —, identification of, 1381m.
— — — on *Chenopodium amaranticolor*, 467.
— — — on cowpea in Iran, 3262; *Venezuela, 2010; incidence of, 2010; transmission of, by sap and vectors, 2010; by seed, 2106, 3262; var. react. to, 2106.
—, *Neocosmospora vasinfecta* on, *Macrophomina phaseoli* associated with and symptoms of, 83.
—, *Pseudomonas putida*, *P. syringae*, and *Serratia marcescens* on, measurement of β-glucosidase synthesis, 2373.
—, tobacco necrosis virus on, adaptation of, to heat, 1771.
—, — ring spot virus on, 2645; peroxidase isozymes in, 2112.
—, tomato ring spot virus on, adaptation of, to heat, 1771.
— virus diseases, 1381m; effect of, on growth and seed production of, 3276; infection in relation to no. of trichomes, 776.
Crambe juncea, *Alternaria brassicae* on, in U.S.A., introduced from abroad, 2437.
Cranberry (*Oxycoccus macrocarpus* and *O. palustris*), *Psilocybe agrariella* on, control, 1627.
Crataegus, apple chlorotic leaf spot virus can infect, 1601.
—, as source of infection for *Erwinia amylovora* on pear, 1d.
Creosote against *Fomes annosus* on spruce, 1329.
— as source of nutrition for *Cladosporium resinae*, 930.
— as timber preservative, 3251.
Cresonit, effect of, on development of *Penicillium* and *Trichoderma* in soil, 1027.
Criconemoides associated with cherry rasp leaf disease, 3502.
Cronartium appalachianum on pine, 1986.
— *comandrae* on pine, 1986, 2872.
— *comptoniae* on pine, 1315, 1986, 3233.
— *conigenum* on pine, 1982, 2288.
— *flaccidum* on pine, 3598.
— *fusiforme*, effect of fatty acid chain length on O uptake and decarboxylation by aeciospores of, 3362.
— —, electron microscopy of aeciospores of, 339.
— — on pine, see Pine.
— —, oxygen consumption and germination of aeciospores of, 1988.
— *occidentale* on pine, 1986.
— *quercuum* on pine, 2868, 3232, 3233.
— —, *Peridermium harknessii* on pine previously reported as, 2562a.
— *ribicola*, effect of preparation for electron microscopy on basidiospores and sterigmata of, 340.
— — on currant, 1207, 3506.
— — on gooseberry, 3506.
— — on pine, see Pine.
— — on pine, *Tuberculina* parasitizing, 401i.
Crotalaria mosaic virus, inhibition of, by pentaene G8, 422.
—, *Sesamum* phyllody virus on, in India, 3254.
*— *anagyroides*, *Helicobasidium compactum* on, in India, 3203.

[*Crotalaria*] *juncea* as indicator for bean mosaic virus, 2105.
— — *Beauveria* sp. on pests of, in India, 1392.
— —, effect of soil microorganisms on germination and growth of, 1424.
— —, *Helminthosporium tetramera* on, in India, distinct from *H. crotalariae*, hosts and symptoms of, 2731.
— *spectabilis*, bean yellow mosaic virus on, characterization and diagnosis of, 1803.
— —, cowpea virus on, transmission of, by vectors from leaf sectors of, correlated with intracellular inclusions in, 1450.
*— —, tobacco ringspot virus on, differentiation of, from previously described strs., properties of, and transmission of, to soybean, 1803.
Crown gall, see *Agrobacterium tumefaciens*.
Cruciferae, *Alternaria brassicae* and *A. brassicicola* on, C.M.I. descriptions of, 3030.
—, beet western yellows virus on, 944.
—, cauliflower mosaic virus on, revised account of, 2894.
*—, *Fusarium bulbigenum* and *F. oxysporum* f.sp. *conglutinans* on, in India, 683.
—, *Leptosphaeria maculans* on, in U.S.A., popular bulletin on, 3621.
—, *Plasmodiophora brassicae* on, in Germany, 3255; control, 3617; races of, 3255.
Crumenula pinicola on pine, 2874.
— *sororia* on pine, 2874, 3219c.
Cryptocoryneum lignicola in U.S.S.R., hosts of, 1179.
Cryptodiaporthe populea, effect of, on germ tube growth of *Nectria purtonii*, 49.
— *salicella* on *Salix*, 336, 643b.
Cryptodin against *Helminthosporium allii* on garlic, 1377j; *Xanthomonas phaseoli* on bean, 1377h; (?) as seed treatment for *Capsicum*, 720; for spinach, 3261.
Cryptogamic flora of Kazakhstan Vol. 5, 1. Sphaeropsidales, 1034.
Cryptonol as soil disinfectant, 1156.
Cryptosporella viticola on grapevine, 1218.
Cryptosporiopsis, production of antifungal substance by, 3699.
CTS against *Valsa cincta* on plum, 256.
Cucumber (*Cucumis sativus*), *Alternaria cucumerina* on, conditions of development, morphology, and symptoms of, 397j.
—, *Arabis* mosaic virus on, purification of, 1193.
— as indicator for cherry destructive canker virus, 1177.
—, cherry chlorotic-necrotic ring spot virus can infect, 255.
— chilling injury, factors affecting, 391c.
—, *Cladosporium cucumerinum* on, chemotherapeutic effect of 6-azauracil on, 3666p; of phenylthiourea on, 3666o; effect of growth regulators on resistance to, 3666n; var. react. to, 385.
—, *Colletotrichum lagenarium* on, carbohydrase activity in, 2605; control, 971, 1401; factors affecting, 2024; radioautographic evidence for induced resistance to, 718.
—, *Erysiphe cichoracearum* on, control, 386, 390t, 1401, 2344, 2345, 2379b, 2383; effect of fungicides on, 972; evaluation of fungicides against, 20; investigating action of systemic fungicides against, 2379b; source of infection of, 2345.
—, — — f.sp. *cucurbitacearum* on, control, 387.
[Cucumber], fungi on, control, 2581.
—, *Fusarium* on, 390a; control, 973.
—, — *solani* on, 1016.
*— green mottle mosaic virus on cucumber in Japan, study on, 1736; effect of temp. on, 2942.
—, *Moniliopsis aderholdii* on, in U.S.S.R., factors affecting pathogenicity of, hosts of, and peat as reservoir of infection for, 2945.
— mosaic virus in Jordan, Lebanon and Syria, 1045; Turkey, 1796; control, 1044; effect of fat emulsions on reduction of mechanical transmission of, 395c; hosts of, 3611; incidence of, 1044; inhibition of, by extracts from animals, 1745n; interference among strs. of, 75b; in vitro increase in infectivity of, 466; role of alternate hosts in maintenance and spread of, 1058; symptoms of, 1044; transmission of, by vectors, 1796.
— — — on beet, 466, 689, 2102.
— — — on broad bean, 2638.
— — — on *Capsicum*, see *Capsicum*.
— — — on celery, 3611.
— — — on *Chenopodium amaranticolor*, 689.
— — — on *Chrysanthemum*, 73.
— — — on *Cicer arietinum*, 3280.
— — — on cowpea, 2112, 3276.
— — — on cucumber in Bulgaria, 1044, 2100; adaptation of, to heat, 1771; epidemiology of, 1745i; hosts of, 1745i; *in vitro* increase in infectivity of, 466.
— — — on *Limnanthes douglassii*, 3054.
— — — on lupin, 2503.
— — — on melon, 1745j.
— — — on *Phaseolus aureus*, 2112.
— — — on *P. lunatus*, 701a, b.
— — — on *Phlox*, 228.
— — — on pimento, 1745h.
— — — on pumpkin, 1362.
— — — on rhubarb, 3294.
— — — on spinach, 3306.
— — — on tobacco, see Tobacco.
— — — on tomato, 1290, 2264, 2836.
— — — on vegetable marrow, 1362.
— — — on *Vernonia anthelmintica*, 3054.
— — +cowpea chlorotic mottle virus on cowpea, 3276.
— — — necrotic str. on tobacco, 2252.
— — — str. on *Capsicum*, 1744e.
— — — — on eggplant, 721.
— — — — on Leguminosae, 75a.
— — — — on *Prunus*, 3055.
— — — — on tobacco, see Tobacco.
— — — — on vegetable marrow, 3654.
— — — — Q, inactivation of, by pancreatic ribonuclease, 3388.
— — — — Y, serology of, 2640.
— — — strs. on tomato, 72.
—, *Mycosphaerella melonis* on, in British Honduras, 1737; *Germany, 3292; *Switzerland, 2025; control, 3292; description and mode of infection, 3292; symptoms of, 1737, 3292.
— necrosis virus, Canadian, distinction of, from tobacco necrosis virus, 2107.
—, *Olpidium cucurbitacearum* on, distinction of, from other *O.* spp. and hosts of, 3658.
—, peach yellow bud mosaic virus on, transmission of, by vectors, 571.
—, *Prunus* necrotic ringspot virus on, serological detection of, 1193.
—, *Pseudomonas lachrymans* on, in Germany, E., 2029; control, 996; relation of cell

permeability alterations to water congestion in, 1369; severity of, 2029.
[Cucumber], *Pseudoperonospora cubensis* on, in *Bulgaria, 970; Ivory Coast, 85; S. Africa, 969; control, 85, 969, 970; factors affecting, 85, 970; factors affecting longevity of, 2346; morphology of, 85; overwintering of, 970; symptoms of, 85; var. react. to, 969.
—, *Pythium* on, 3611.
—, — *aphanidermatum* on, in Ivory Coast, morphology and symptoms of, 85.
—, — *myriotylum* on, susceptibility to, 2434.
— root rot control, 719.
—, rose mosaic virus on, purification and serology of, 843.
—, sclerotial fungus on roots of, 390a.
—, *Sphaerotheca fuliginea* on, in Czechoslovakia, 3656; adaptation of, to heat, 1771; control, 2347, 3655, 3693.
—, — — f.sp. *cucurbitacearum* on, control, 387.
—, strawberry latent ringspot virus can infect, 1060.
—, tobacco ringspot virus on, 2645.
—, virus infection of, in relation to no. of trichomes, 776.
Cucumis, *Erwinia tracheiphila*, *Erysiphe cichoracearum*, and *Pseudomonas lachrymans* on, spec. react. to, 2940.
— *melo*, see Melon.
— — var. *cantaloupina*, see Cantaloupe.
— *sativus*, see Cucumber.
Cucurbita maxima, see Squash.
— *pepo*, see Pumpkin, Vegetable marrow.
Cucurbitaceae, melon shot hole virus on, properties and transmission of, 3611.
—, passion fruit woodiness virus can infect, 271.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, *Sphaerotheca fuliginea* on, in India, 1364; C.M.I. description of, 1035b; identification of, 1364.
— virus diseases in Venezuela, 3306.
Cucurbitaria piceae on spruce, 359.
Culture collections, Brewing Industry Research Foundation, 1033; functions and maintenance of, 986r; Japan, Inst. for Fermentation, 1786, N.Z., 3370.
Cuman against *Alternaria triticina* on wheat, 793; *Hemileia vastatrix* on coffee, 2722.
Cumin (*Cuminum cyminum*), *Fusarium oxysporum* f.sp. *cumini* on, effect of crop rotation on, 866; of soil disinfection on, 279; metabolites of, in relation to, 867.
Cunninghamella echinulata in soil, 2816.
— —, reversal of inhibition of endogenous respiration of, 3010.
Cupracin against *Elsinoe ampelina* on grapevine, 1634, 3171.
— -1 against *Phytophthora infestans*, *Plasmopara viticola*, and *Venturia inaequalis*, 1396.
Cupressus lusitanica, *Poria* on, in East Africa, causing root disease, 1379d.
— —, *Sclerophoma pithyophila* on, in East Africa, 1379e.
— —, suitability of, in E. Africa, 920.
Cupric and Cuprous, see Copper.
Cupritox against *Puccinia pringsheimiana* on gooseberry, 1927.
Cuprocin against *Peronospora tabacina* on tobacco, 2834; *Phytophthora infestans* on tomato, 2836; *Pseudomonas angulata* and *P. tabaci* on tobacco, 2834.
[Cuprocin] in combination against *Peronospora tabacina*, *Pseudomonas angulata*, and *P. tabaci* on tobacco, 2834.
Cupronyl against *Elsinoe ampelina* on grapevine, 3171.
Cuprosan against copper deficiency in apple, 2521; *Plasmopara viticola* on grapevine, 2791, 2792; *Puccinia pringsheimiana* on gooseberry, 1927.
— super D against *Elsinoe ampelina* on grapevine, 1634, 3171.
Cuproxol and curitan in combination against *Fabraea maculata* on pear and quince, 3495.
Curcuma amada, *Taphrina maculans* on, var. react. to, 870.
— *longa*, see Turmeric,
Currant (*Ribes* spp.), *Botrytis cinerea* on, control, 1375p.
—, *Cronartium ribicola* on, in U.S.S.R., biology of, 1207; specialized form of, 3506.
— diseases control, 578, 1375p; revised leaflet Min. Agric. & Fish. on, 578.
—, effect of sap on *Caragana arborescens* virus disease, 1975.
—, *Nectria cinnabarina* on, dispersal of ascospores of, 3302b; factors affecting, 2031e.
—, — *galligena* on, dispersal of ascospores of, 3302b.
— reversion virus, revised edition Min. Agric. & Fish. Bull. on, 3505.
—, *Sphaerotheca mors-uvae* on, 1743v; control, 1375q; differentiation of life-cycle of, from *S. mors-uvae* on gooseberry, 2774; factors affecting, 2774; overwintering of, 2773.
—, *Verticillium* on, factors affecting, 3159.
Curvularia lunata, see *Cochliobolus lunatus*.
— *pallescens* on stored rice, 520.
— —, sclerotial formation by, 431.
— *ramosa*, hosts of, 1094.
*— *robusta* on *Dichanthium annulatum*, *234, 553.
*— — on grasses, 234.
— *trifolii* on *Astragalus sinicus* and clover, 1175.
*— — f.sp. *gladioli* on *Gladiolus*, 3469.
— *verruciformis*, assimilation of nitrite by, 753.
Cuscuta, see Dodder.
Custard apple (*Annona reticulata*), *Cylindrocladium quinqueseptatum* can infect, 765.
**Cyamopsis psoraloides*, *Alternaria tenuis* on, in India, 3639.
*— —, — *tenuissima* on, in India, symptoms of, 1732.
— —, strawberry mottle virus can infect, 1625.
— —, *Xanthomonas cyamopsidis* on, effect of light and N on, 2012.
Cyanamide against *Typhula incarnata* on barley, 2691.
Cyclamen, *Erwinia* on, 2357c.
—, — *carotovora* on, in Iran, hosts of, 3315.
—, *Nectria radicicola* on, in the Netherlands, 3459c.
— root rot control, 3133.
—, *Thielaviopsis basicola* on, in the Netherlands, 3459c; control, 1156, 3459c.
Cycloconium oleaginum on olive, see Olive.
Cyclododecyl-2,6-dimethyl-morpholin-acetate, see CDM.
Cycloheximide against *Armillaria mellea*, 3696.
—, effect of carbohydrates on toxicity of, to *Pythium aphanidermatum*, 426a; of N on toxicity of, to *P. aphanidermatum*, 426b; of,

on resistance of potato to *Pseudomonas*, 2247.
[Cycloheximide], ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
— acetate against *Valsa cincta* on peach, 575.
— derivatives, factors affecting toxicity of, to *Saccharomyces pastorianus*, 746.
— semicarbazone against *Valsa cincta* on plum, 1199.
— thiosemicarbazone against *Agrobacterium tumefaciens* on cherry, 3158; *Valsa cincta* on peach, 575.
— — in combination against *Valsa cincta* on plum, 3498.
Cydonia oblonga, see Quince.
Cylindrocladium floridanum, hosts of, 3461.
*— *quinqueseptatum* on *Annona squamosa* and *Eucalyptus*, 765.
— *scoparium*, *Calonectria uniseptata* perfect state of, 2739.
— —, hosts of, 3461.
— — on *Liriodendron tulipifera*, 3305g.
*— — on *Madhuca indica*, 1930.
— — on spruce, 3243.
Cylindrosporium maculans on mulberry, 1630.
Cymbidium, *Botrytis cinerea* on, control, 2504.
—, tobacco mosaic virus str. on, 80.
Cymbopogon flexuosus, *Tolyposporium christeni*, on, in India, differentiation of, from *T. cymbopogonis*, 2513.
Cynara scolymus, see Artichoke.
Cynkotox, see Zineb.
Cynodon dactylon, *Cochliobolus cynodontis* on, in Japan, 552.
— — dead spot in U.S.A., etiology and symptoms of, 2186.
— —, *Helminthosporium cynodontis*, *H. spiciferum*, and *Ophiobolus* on, causing root rot, 2186.
Cypress, see *Cupressus*.
—, bald, see *Taxodium distichum*.
Cyprex against *Fusicladium effusum* on pecan, 1686.
**Cystopteris fragilis*, *Phyllosticta cystopteridis* on, in U.S.A., 87.
Cytophoma pruinosa, (?)inducing ash dieback, 3578.
Cytospora batangae, conidial state of *Valsa batangae*, 283.
— *capitata* and *C. personata* on apple, 565, 3153.
Cytosporina acharii, *Aphelenchoides bicaudatus* parasitizing, 1393.

2,4-D, effect of, on development of soil micro-organisms, 1027.
— preparations causing tomato malformation, 2269b.
D735 against *Corticium solani* on cotton, 2597.
—, toxicity of, to basidiomycetes, *Sclerotinia laxa*, and *Verticillium alboatrum*, 739.
Daconil against *Botrytis cinerea* on strawberry, 3164; *Gibberella fujikuroi* on *Dracaena* and *Pleomela*, 1584; *Helminthosporium heveae* on *Hevea* rubber, 1256; *Mycosphaerella berkeleyi*, 3285; *Phytophthora infestans* on tomato, 18; *Sphaerotheca fuliginea* on cucumber, 2347; *Venturia inaequalis*, 4a.
— effect of, on seed set of sweet potato, 3548.
— 2787 against *Alternaria solani* on potato, 1381j; *Botrytis cinerea* on raspberry, 2219; *Bremia lactucae* on lettuce, 1375s; *Exobasidium vexans* on tea, 621c; *Peronospora parasitica* on cabbage, 1375s, 3616; *Phytophthora infestans*, 1381j; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
[Daconil 2787], paper on, 1743y.
Dacrymycetales in U.S.S.R., key to, 454.
Dactylaria and *Dactylella*, interaction of, with soil micro-organisms, 441.
Dactylis glomerata, *Mastigosporium rubricosum* on, in Germany, E., 2743.
— —, *Puccinia coronata* f.sp. *avenae*, *P. graminis* f.sp. *avenae*, and **P. striiformis* f.sp. *dactylidis* on, in Argentina, incidence and virulence of, 1910.
*— —, *Xanthomonas translucens* f.sp. *hordei* on, in Japan, symptoms of, 1911.
Daedalea quercina, effect of apricot apoplexy tannins on growth of, 1205.
— —, on timber, 929.
Daffodil, see *Narcissus*.
Dahlia, *Entyloma dahliae* on, control, 3468.
—, *Erwinia carotovora* can infect, 3315.
—, — *cytolytica* on, differentiation of, from *E. aroideae*, *E. atroseptica*, and *E. carotovora*, and taxonomy of, 408.
— mosaic virus on ornamentals, 2357e.
— — —, resemblance of carnation J–239 virus to, 390i.
— — —, transmission of, 3901.
*—, *Mycosphaerella ligulicola* on, 1154.
— virus 4, resemblance of, to *Prunus* necrotic ring spot virus, 3901.
Dalbergia, *Phyllactinia dalbergiae* on, C.M.I. description of, 3731b.
*— *sissoo*, *Glomerella cingulata* on, in India, pathogenicity and symptoms of, 1682.
Dalbulus transmitting maize stunt virus, 3432.
Damping-off of beet, 3260; pea, 41; pine, 341, 2863a, b; spruce, 341; tobacco, 1381e, 3210.
Damson (*Prunus insititia*), *Podosphaera oxyacanthae* var. *tridactyla* on, in Switzerland, 1809.
—, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
Danthonia spicata, *Atkinsonella hypoxylon* on, growth of, in culture, 233.
Darluca filum on *Puccinia graminis* f.sp. *avenae*, 1168a.
— —, use of, against maize rusts, 152h.
Date Palm (*Phoenix dactylifera*), decline in Mauritania, known as 'faroun', (?)relationship of *Piezodorus pallescens* to, 285.
— —, *Fusarium oxysporum* f.sp. *albedinis* on, in N. Africa, history and symptoms of, 284.
— —, *Omphalia pigmentata* and *O. tralucida* on, in Mauritius, distribution and importance of, 1944.
Datura, nature, properties, and purification of antiviral factor induced in, by phytic acid, 1051.
—, tomato bushy stunt virus on, differentiation of isolate on cherry from, 1620.
— *candida* and *D. sanguinea*, Colombian *Datura* virus on, 2647.
— *fastuosa*, *Cercospora medicaginis* on, (?)source of inoculum for, 3143.
— *inermis*, maize virus on, 150.
— *stramonium*, *Agrobacterium tumefaciens* str. on, effect of glycine on growth and virulence of, 1391.

[*Datura stramonium*], *Astragalus* dwarf virus can infect, 1712.
— —, cucumber green mottle mosaic virus can infect, 1736.
— —, effect of extracts of on potato virus X ringspot str., 470a; radish mosaic virus, 471.
— —, tobacco leaf curl virus str. on, 3568.
— —, — mosaic virus on, effect of, on, 2254.
— —, — — — str. on, 2740.
— —, tomato bushy stunt virus on, non-transmission of, by *Olpidium brassicae*, 2646.
— virus, properties and serology of, 2357f.
Daucus carota, see Carrot.
Davisomycella ampla on pine, 2562b.
— *fragilis* on pine, 347.
Dazomet against *Fusarium oxysporum* f.sp. *pisi* on pea, 951.
— as soil disinfectant, 951, 2584n.
DBCP against nematodes and *Pythium* on pecan, 3225.
— in combination, effect of, on *Pythium* on pecan, 3225.
DCMO, see Vitavax.
DCMOD against *Phragmidium mucronatum* on rose, *Puccinia horiana* on *Chrysanthemum*, injury to *Chrysanthemum*, 1580.
—, see also Plantvax.
DCNA, see 2,6,dichloro-4-nitroaniline.
DD against *Fusarium oxysporum* f.sp. *vasinfectum* and *Verticillium alboatrum* on tomato, 1970; nematodes associated with *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; as soil disinfectant, 694b, 859, 951.
—, effect of, on *Arabis* mosaic virus on strawberry, 859; on *Fusarium oxysporum* f.sp. *pisi* on pea, 951.
— in combination as soil disinfectant, 2356e, f.
DDAB against *Podosphaera leucotricha*, 2198; *Venturia inaequalis*, 250, 2198.
—, toxicity of, to apple, 250, 2198.
DDT (WP) in combination against vectors of sesame viruses, 2800.
Decenylsuccinic acid, effect of, on *Botrytis fabae* on broad bean, 3632.
Deightoniella torulosa on banana, 2783.
— — on *Musa*, 3030.
Delacroixia coronata in soil, 37.
Delan against *Blumeriella jaapii* on cherry, 3302c; *Erysiphe cichoracearum* on tobacco, 1278; *Marssonina* on poplar, 3392d; *Plasmopara viticola* on grapevine, 2791; *Venturia inaequalis*, 4a.
Delphacidae (?)transmitting wheat striate mosaic virus (European), 3665d.
Delphacodes pellucida transmitting oat sterile dwarf virus, 1509.
— *striatella* transmitting northern cereal mosaic virus, 3071.
Delphinium, *Pseudomonas delphinii* on, control, 542.
—, *Uromyces delphinii* on, in French Alps, 46e.
Deltocephalus sonorus transmitting maize stunt virus, 3432.
Dematiaceae, key to identification of, 3037.
Dendrobium disease in Germany, symptoms of, 2180.
— *phalaenopsis*, *Gibberella fujikuroi* on, in Germany, symptoms of, 2180.
Dendromyza transmitting *Aplanobacter populi*, 3227.
**Dendrophoma obscurans* on strawberry, 1743x.
Dentipratulum bialoviesense on forest trees, 323.
2-deoxy-D-glucose, effect of, on respiration of *Colletotrichum musae* and *Glomerella cingulata* on banana, 1415.
Dermea pseudotsugae on *Pseudotsuga menziesii*, 671.
**Deschampsia caespitosa*, *Urocystis agropyri* on, subterranean sporulation by, 2184.
Detersin in combination against *Peronospora destructor* on onion, 965.
Deuteromycetes on timber, 3247.
Deuterophoma tracheiphila on *Capsicum*, 1883a.
— — on citrus, 193.
— — on herbaceous plants, tomato, and trees, 1883a.
Dexon against *Aphanomyces cochlioides* in soil, 2902; *A. euteiches* on pea, 1427; *Corticium solani* in soil, 2902; *Omphalia pigmentata* and *O. tralucida* on date palm, 1944; *Phytophthora capsici* on *Capsicum*, 2949; *Pythium aphanidermatum* and *P. ultimum* in soil, 2902; as soil disinfectant, 1427, 3301b, c.
—, effect of, on soil mycoflora, 1427.
— residues in soil, 1427.
Dianthus, *Uromyces caryophyllinus* on, in Rumania, 1377k.
— *barbatus* as indicator for carnation mottle virus, 2179.
— —, carnation latent virus and carnation mottle virus on, elimination of, by meristem tip culture, 3462.
— —, — ring spot virus on, elimination of, by meristem tip culture, 3462; transmission of, by vectors, 221.
— —, — vein mottle virus on, elimination of, by meristem tip culture, 3462.
— —, *Cylindrocladium floridanum* and *C. scoparium* on, in U.S.A., 3461.
— *caryophyllus*, see Carnation.
— *chinensis*, carnation mottle virus str. on, differentiation of carnation mottle virus str. on carnation from, 3463.
Diaphorina citri transmitting citrus greening virus, 2167; citrus leaf mottle virus, 190; citrus leaf-mottle yellows virus, 1876.
Diaporthe citri on citrus, 817.
— — on orange, 3114.
— *lokoyae* on *Pseudotsuga menziesii*, 2571.
— *perniciosa* on apple, 3151.
— — on plum, 1201, 2527.
— *phaseolorum* var. *sojae* on soybean, 1939.
Dibotryon morbosum on plum and *Prunus serotina*, 573.
Dibromochloropropane, see Nemagon.
Dichanthium annulatum, **Curvularia robusta* on, in U.S.A., 234; description of, 553; symptoms of, and var. react. to, 234.
Dichlofluanid against *Botrytis cinerea* on *Chrysanthemum*, 390e, 836; on raspberry, 2219; on strawberry, 394a; *B. fabae* on broad bean, 419; *Bremia lactucae* on lettuce, 1375s; *Peronospora parasitica* on cabbage, 1375s, 3616; on cauliflower, 1375t; *Pezicula* on apple, 2204; *P. malicorticis* on apple, 564; *Venturia inaequalis*, 2204.
—, effect of, on *Botrytis cinerea* on strawberry, 2532, 3301a.
—, inhibition of strawberry pollen by, 3301a.
—, methods for determining residues of, in plants, 2382.
—, residues of, on raspberry, 3664e; on strawberry, 394a.

[Dichlofluanid] in combination against *Botrytis cinerea* and *Itersonilia perplexans* on *Chrysanthemum*, 390e.
Dichlone against *Bremia lactucae* on lettuce and *Peronospora parasitica* on cabbage, 1375s.
Dichloran against *Botrytis cinerea*, *Sclerotinia minor*, and *S. sclerotiorum* on lettuce, 2343.
—, effect of, on *Botrytis cinerea* on strawberry, 3163, 3301a.
— inhibition of strawberry pollen by, 3301a.
Dichlorethane in combination against *Peronospora tabacina*, 627.
2,6-dichloro-4-nitroaniline against *Botrytis allii* on onion, 380.
—, *Rhizopus stolonifer* tolerant to, 3694.
— wax emulsion against *Penicillium* on lemon, 197.
Dichlorophen against *Pezicula alba* and *P. malicorticis* on apple, 1375 l.
2,4-dichlorophenoxy-acetonitrile against *Armillaria mellea*, 3696.
5,4′-dichlorsalicylanilide against *Erysiphe cichoracearum* on cucumber, 386.
Dicotox, effect of, on development of *Penicillium* and *Trichoderma* in soil, 1027.
Didecyldimethyl ammonium bromide, see DDAB.
Didymascella thujina on *Thuja plicata*, 3219.
Didymella applanata on loganberry, 3161.
— — on raspberry, 2776, 3160, 3509.
— *lycopersici*, *Ascochyta lycopersici* preferred for imperfect state of, 1303.
— — on tomato, see Tomato.
— *macrospora* on *Iris*, 2366.
Didymellina dianthi on carnation, 3464.
Dieffenbachia, *Fusarium* and (?)*Pectobacterium parthenii* on, in the Netherlands, control and symptoms of, 3459d.
— *picta*, *Phaeosphaeria eustoma* on, 2499.
Dieldrin against *Corticium solani* on cabbage, 2306.
N,N-diethyl imidazol-1-yl phenylphosphinamidothionate against *Erysiphe cichoracearum* on cucumber, and *Phytophthora infestans* on potato, 2383.
Difolatan against *Botrytis allii* on onion, 380; *B. cinerea* on grapevine, 3172; on strawberry, 3164; *Bremia lactucae* on lettuce, 1375s; cotton boll rot, 1143; fungi on groundnut, 1731c; *Gibberella fujikuroi* on *Freesia*, 390g; *Glomerella cingulata* on coffee, 1559, 2724; *Hemileia vastatrix* on coffee, 1559; *Marssonina brunnea* on poplar, 2853; *Peronospora parasitica* on cabbage, 1375s; *Phytophthora capsici* on *Capsicum*, 2949; *P. infestans* on potato, 597e; *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
—, analytical methods for, 3326.
— as seed treatment for groundnut, 2019; for pine, 3595a; as soil disinfectant, 597e.
—, effect of, on *Fusarium oxysporum* f.sp. *dianthi* on carnation, 2356h; on seed set of sweet potato, 3548; on *Verticillium cinerescens* on carnation, 2356.
—, inhibition of *Corticium solani*, *Fusarium oxysporum*, and *Sclerotium rolfsii* by, 3305a.
—, paper on, 1743 l.
— versus copper, 2724.
— in combination as seed treatment for groundnut, 2019.
— W-80 against *Guignardia citricarpa* on citrus, 1126.
Digitaria sanguinalis, maize dwarf mosaic virus on, 2144.
2,3-dihydro-5-carboxanilido-6-methyl-1,4-oxathiin, see Vitavax.
2,3-dihydro-5-carboxanilido-6-methyl-1,4-oxathiin-4,4 dioxide, see Plantvax.
Dihydroergosine, production of, by *Sphacelia sorghi*, 2478.
Dill (*Anethum graveolens*), *Cercosporidium punctum* on, 450.
**Dimeriella sacchari* on sugarcane, 302.
2,5-dimethylmorpholine-acetate against Erysiphaceae, 1374i.
Dimethylnaphthalene against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Dimethyl sulphoxide, see DMSO.
Dimorphotheca, potato virus Y and tobacco etch virus can infect, 1455.
Dinitroalkylphenols and crotonic esters, toxicity of, to Erysiphaceae, 1374j.
Dinitrobenzene thiocyanate against *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
Dinitro-octyl-phenol methylcarbonate isomers, fungicidal activity of, 393c.
Dinitro (1-methyl-heptyl) phenyl, effect of, on uredospores of *Puccinia graminis*, 785.
Dinitrorhodanebenzene on colloidal S against *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
Dinitrorhodanebenzol in combination against *Plasmopara viticola* and *Uncinula necator*, 2792.
2,6-dinitro-4-tri-fluormethyl phenol esters against *Phytophthora infestans* on potato and tomato, 3542.
Dinocap against *Sphaerotheca macularis* on strawberry, 2219.
— in combination against *Podosphaera leucotricha* and *Venturia inaequalis*, 2198.
Dinocton-*o* against *Oidium*, 3325.
— *-p* against powdery mildews and *Pyricularia oryzae* on rice, 3325.
Dinoseb, use of, for killing potato haulms, 1235c.
Dioscorea, see Yam (unless specified).
— *alata*, *Colletotrichum gloeosporioides* f.sp. *alatae* on, epidemiology of, 2952.
Diospyros kaki and *D. virginiana*, see Persimmon.
Diphenyl wraps against *Guignardia citricarpa* on orange, 1127.
Diphenylamine, see DPA.
Diphenylmethane against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Diplocarpon earlianum on strawberry, 860.
— *rosae* on rose, 1589.
**Diplocladium* (?)*majus* on mushroom, 2032i.
Diplodia gossypina associated with cotton boll rot in Formosa, 1143.
*— *macrospora* on maize, 156.
— *maydis* on maize, 2476, 3455.
— *natalensis*, ?*Botryodiplodia theobromae* synonymous with, 1441.
— — on citrus, 2717.
— — on mango, 269, 3342.
— — on orange, 3114.
— — on timber, 3608.
— *pinea* on pine, 2271e, 2873.
— — on timber, 1333, 3249.
— *tumefaciens* on aspen and poplar, 2562d.
Diplodina lycopersici on tomato, 1303.

[*Diplodina*] *salicis* on *Salix*, 336.
Diquat against artichoke atrophy, 2354.
Directory of collections and list of species maintained in N.Z., 3370.
Discomycetes in U.S.S.R., systematic list of, 2415.
— on fruit, 1598.
—, re-evaluation of nomenclature, phylogeny, and taxonomy of, 3373.
Discula pinicola var. *mammosa*, factors affecting growth of, 361.
Disease epidemics, analysis of progress curves of, 2035.
Disulfoton as soil disinfectant, 3093.
—, effect of, on maize dwarf mosaic virus on maize, 3093; on incidence and severity of *Verticillium alboatrum* on cotton, 2485.
Dithane against *Cercospora insulana* on *Limonium sinuatum*, 3470.
—, effect of, on seed set of sweet potato, 3548.
— 65 against *Polystigma rubrum* on plum, 2528.
— M against *Typhula incarnata* on barley, 2691.
— M–22 against *Peronospora tabacina* on tobacco, 2256; *Phytophthora infestans*, 2961.
— M–45 against *Alternaria solani* on potato, 1381j; *Marssonina brunnea* on poplar, 2853; *Mycosphaerella arachidis* on groundnut, 1356; *Phytophthora infestans* on potato, 1381j, 2240; *Plasmopara viticola* on grapevine, 2791; *Sclerotinia squamosa* on onion, 2934; *Venturia inaequalis*, 4a.
— — in combination against *Ceratocystis paradoxa* on sugarcane, 3198d.
— S–31 against *Alternaria triticina* on wheat, 793.
— Z–78 against *Peronospora arborescens* on opium poppy, 281; *P. destructor* on onion, 709.
— — versus CL–50, 3686.
— ultra against cyclamen root rot, 3133.
Dithianon against *Pyrenochaeta terrestris* on tomato and as soil disinfectant, 391e.
2,4-dithio-6-azauracil, fungistatic activity of, 3690.
Dithiocarbamates against *Helminthosporium heveae* on *Hevea* rubber, 880c; *Polystigma rubrum* on plum, 1200; *Pseudoperonospora humuli* and *Sphaerotheca macularis*, 1376h.
—, chemical analysis of, 740.
—, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
— residues of, in crops, 393d.
— versus copper fungicides, 1200.
Di-trapex as soil disinfectant, 2356f.
—, effect of, on mycorrhiza of forest trees, 1410.
Ditylenchus myceliophagus, hosts of, 2077.
DMSO against *Armillaria mellea*, 3696.
—, effect of, on tobacco mosaic virus on *Chenopodium amaranticolor*, *Nicotiana glutinosa* and *N. rustica*, 1664.
— in combination against *Valsa cincta* on plum, 3498; *Venturia inaequalis*, 3491; as soil disinfectant, 3617.
DMTT, see mylone.
DNB, against *Fusarium oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
— as soil disinfectant, 1374g.
DNOC against *Rhacodiella vitis* on grapevine, 1934, 3520.
DNOPC in combination against *Venturia inaequalis*, 250.
Dodder (*Cuscuta*), *Alternaria cuscutacidae* on, technique for culturing, 3046.
— transmitting ash yellows-type virus, 2590i; plant viruses, 1448; strawberry crinkle virus, 265.
Dodine against *Fabraea maculata* on pear, 1921; *Fusicladium effusum* on pecan, 3584; *Gnomonia leptostyla* and *Xanthomonas juglandis* on walnut, 2280; *Venturia inaequalis*, 4a, 3491, 3492.
— in combination against *Fabraea maculata* on pear and quince, 3495; *Venturia inaequalis*, 3491.
— acetate against *Venturia inaequalis*, 250.
— — in combination against *Podosphaera leucotricha* and *Venturia inaequalis*, 2198.
Doguadine against *Sclerotinia fructigena* and *S. laxa* on plum, 1615.
Dolichos enation mosaic virus on bean, 1459.
— — — — —, protein composition of, 2548c.
— — — — —, quality of virus affected by ambient temp., 465; serotype of tobacco mosaic virus, 465.
Dothidella ulei on *Hevea* rubber, 880e.
Dothistroma pini, conidial state of *Scirrhia pini*, 352.
— — var. *keniensis*, growth of and germination of, 1322.
— — — — — on pine, 1984.
DPA against *Guignardia citricarpa* on orange, 1127; pear superficial scald, 1612.
Dracaena, *Gibberella fujikuroi* on, symptoms of, 1584.
Drazoxolan against Erysiphaceae, 1376i; *Erysiphe graminis* on cereals, 1743j; as seed dressing, 1376i.
—, properties of, 1376g.
Drechslera bicolor on wheat, 3083.
— *dictyoides* on *Festuca pratensis* and *F. rubra*, 2743.
— *halodes* in soil, 3022.
*— *sacchari* on sugarcane, 1747d.
— *stenospila* on sugarcane, 1264, 1462.
— *tetramera* in soil, 3022.
Dupont 1991 against *Botrytis cinerea* on raspberry and strawberry, 2219; *Fusicladium effusum* on pecan, 3584; grass diseases, 2509; *Penicillium digitatum* and *P. italicum* on citrus, 3442; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744; *Sclerotinia sclerotiorum* on bean, 1352; *Sphaerotheca fuliginea* on cucumber, 2347, 3655; on squash, 3655; *S. macularis* on raspberry and strawberry, 2219; *Ustilago striiformis* on *Poa pratensis*, 3478; as seed treatment for cucumber and squash, 3655; as soil disinfectant, 2486, 3265, 3461, 3655.
— —, fungicidal properties of, 3687.
— — in combination against *Venturia inaequalis*, 3491.
— 4472 in combination versus cyprex and duter, 1686.
Duter, action and properties of, 1743m.
— against *Fusicladium effusum* on pecan, 1686, 3584; *Microsphaera alni* on pecan, 1686; *Mycosphaerella berkeleyi*, 3284; *Septoria lycopersici* on tomato, 1968.
Duter 50–W against *Pyricularia oryzae*, 1541.
— — verus PMA, 1541.
DXN 2111 against *Tilletia* on wheat, 1840.
Dyrene against *Corticium fuciforme* on turf,

1592; *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744; *Stemphylium botryosum* f.sp. *lycopersici* on tomato, 3217.
[Dyrene] residues on lettuce and tomato, 394a.
Dysaulacorthum vincae transmitting turnip yellows virus, 395g.

Ecballium elaterium, see Wild cucumber.
Echinochloa colonum, rice hoja blanca virus on, transmission of, by vectors, 3103.
— *crusgalli*, maize virus can infect, 150.
— *polystachya*, vectors of rice hoja blanca virus on, 1538.
Echinodontium tinctorium, nutritional requirements of, 3246.
— — on *Abies*, 3245.
— — on *A. concolor*, 1330.
— — on *A. grandis*, 2299.
— — on *A. lasiocarpa*, 2859.
— — on *Tsuga*, 3245.
Echtes Ackerbohnemosaic virus in Lithuania, 2317, 2318; U.K., properties of, 1725.
Eggplant (*Solanum melongena*), *Alternaria porri* on, effect of R.H. and temp. on infection by, 3069.
—, cucumber mosaic virus on, 1745i.
—, — — — str. on, in India, hosts and transmission of, by sap and vectors, 721.
— little leaf disease, estimating intensity of, 3660.
—, lucerne mosaic virus on, in Italy, identification and symptoms of, 2352.
— mosaic virus in Trinidad, serologically related to Andean potato latent virus, 3301n.
— — — on eggplant, relationship of, to tobacco etch virus and transmission of, by sap and vectors, 2951.
—, *Phomopsis* on, 1301.
—, — *vexans* on, factors affecting growth and sporulation of, 388.
—, *Pseudomonas solanacearum* on, 280; in Bulgaria, penetration of, 2594.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, stolbur virus on, in Bulgaria, 2100; symptoms of and transmission of, by vectors, 1451.
—, *Verticillium* on, susceptibility to, 478.
—, — *alboatrum* on, breeding against, 722; effect of soil temp. on, 978h.
—, — *nigrescens* on, effect of soil temp. on, 978h.
*—, — *tricorpus* on, 2658.
Ekmolin and Ekmonovocillin, effect of, on *Fomes tremulae*, 2388.
El 241 against *Sphaerotheca fuliginea* on cucumber, 2347.
Elaeis guineensis, see Oil Palm.
Elder, see *Sambucus*.
Electron microscopy of *Agrobacterium tumefaciens*, 1756; *Agropyron* mosaic virus, 3475; *Aspergillus niger*, 3739; barley stripe mosaic virus, 1498; beet yellows virus, 1999; Brazilian tomato ringspot virus, 1291; *Bromus* mosaic virus, 135; cassava mosaic virus, 724; cauliflower mosaic virus, 2572; *Chenopodium hybridum* mosaic virus, 467; clover wound tumour virus, 2428; *Colletotrichum lagenarium*, 2946, 3657; cowpea mosaic virus, 467; *Cronartium fusiforme*, 339; *C. ribicola*, 340; *Dolichos* enation mosaic virus, 1459; *Erysiphe graminis*, 1099; *Lantana horrida* virus, 2736; maize mosaic virus, 504; maize rough dwarf virus, 2472; *Melampsora lini*, 830; *Olpidium brassicae*, 3740; pea enation mosaic virus, 3263; *Phytophthora erythroseptica*, 2086; pine mycorrhiza, 1002; potato aucuba mosaic virus, 1646; potato viruses S, X, and Y, 2544; *Puccinia graminis*, 787, 1082; *Pythium debaryanum*, 3039; *P. ultimum*, 1443; satellite virus of tobacco necrosis virus, 2425; *Sclerospora macrospora*, 2627; *Tilletia caries*, 3739; tobacco mosaic virus, 1271, 1963, 3556; tobacco ringspot virus, 1803; turnip mosaic virus, 467; *Ustilago avenae* and *U. hordei*, 3739; wheat mosaic virus, 486.
[Electron microscopy], stereoscan, of *Acremoniella*, 1041.
Eleusine coracana, effect of inhibitor from, on germination of *Cochliobolus miyabeanus*, 1406; of seed treatment on viability of seeds in storage, 1113j.
— —, factors affecting microflora of rhizosphere, 808.
— —, *Helminthosporium nodulosum* on, in India, virus associated with, 1534; var. react. to, 164.
— —, — — + virus disease on, in India, symptoms of, 163.
— —, *Pseudomonas rubrilineans* not infecting, 804.
— —, *Sclerotium rolfsii* on, association of nematodes with, 1113q; control, 113o.
— —, *Xanthomonas coracanae* on, control, 3101.
Elm (*Ulmus*), *Ceratocystis ulmi* on, in Canada, 643a; U.S.A., 1683; *U.S.A. (Idaho), 1684; effect of carboxylic acids on, 1307; of inoculum concentration on development of, 906; of polyphenols on discoloration caused by, 905; of TCPA on, 2848; histochemical studies on, 652; inhibition of, by bacteria, 2590j; popular review of, 1683, 3222; recurrence and recovery in, 3581; resistance to, 3582; spread of, 643a; study on, 327; technique for detecting, 651; var. react. to, 907.
*—, *Taphrina ulmi* on, in Norway, 1680.
—, *Verticillium alboatrum* on, var. react. to, 907.
—, — *dahliae* on, factors affecting tolerance of, 2276.
Elsinoe ampelina on grapevine, 1217, 1634, 3171.
— *fawcettii* on citrus, 1073.
— *piri* on pear, 2524.
— *veneta* on loganberry, 3161.
— — on raspberry, 1377n, 2776.
Elvaron, effect of, on *Hapalosphaeria deformans* on raspberry, 3301b.
Elymus, *Puccinia agropyri* on, resistance to, 95a.
—, — *graminis* ff.sp. *agropyri-repentis* and *secalis* on, in Italy and Yugoslavia, 96b.
Empusa aulicae and *E. muscae*, temp. range for growth of, 2357g.
Endothia parasitica, metabolism of sporulation in, 28, 2609.
— — on chestnut, 2274, 2275.
Endria inimica, multiplication of wheat striate mosaic virus in, 102.
— — transmitting wheat striate mosaic virus, 2123.
Endrin against vectors of sesame viruses, 2800.
Ensete ventricosum, *Xanthomonas musacearum* on, in Ethiopia, characteristics and pathogenicity of, 1389.

Entomophthora against *Numicia viridis* on sugarcane, 1259b.
— *aphidis* on *Macrosiphum pisi*, 2683.
— *coronata*, effect of air pressure on spore discharge in, 2967.
— — on *Brevicoryne brassicae*, *Lipaphis erysimi*, and *Myzus persicae*, 1757.
*— *fresenii* on *Coccus viridis*, 414.
— *pyriformis* on *Rhopalosiphum insertum*, 3323.
— *sphaerosperma*, factors affecting spore germination of, 3682.
— *thaxteriana*, factors affecting spore germination of, 3682.
— — on *Macrosiphum pisi*, 3683.
— *virulenta*, temp. range for growth of, 2357g.
Entyloma compositarum on *Gaillardia pulchella*, 1585.
— *dahliae* on *Dahlia*, 3468.
— *oryzae* on rice, 519, 1539.
*— *vignae* on cowpea, 2337.
EP 201, effect of, on *Thielaviopsis basicola* on tobacco, 1285.
Epicoccum nigrum on *Pseudotsuga menziesii*, 3240.
— — on timber, 1990.
**Epipolaeum abietis* on *Abies lasiocarpa*, 2562e.
— *longisetosum* on *Salix*, 336.
Eradex new against powdery mildews, 20.
Eremothecium ashbyi on cotton, 3731b.
Erica, *Phytophthora cinnamomi* on, in Germany, 1374c.
— *carnea*, *Phytophthora citricola* on, in Germany, 394 l.
Ericaceae, fungi on, in Pacific Coastal area, 3034.
Eriobotrya japonica, see Loquat.
Eriophyidae transmitting plant viruses, 1798.
Erodium cicutarium and *E. moschatum*, beet yellow wilt virus on, 2312.
Eruca sativa, cauliflower mosaic virus on, 2308.
Erwinia amylovora, bacteriophage studies on, 409.
— —, comparison of protein patterns of, with other bacteria, 3680.
— — on apple, see Apple.
— — on pear, see Pear.
— — on *Pyrus serotina* and *P. ussuriensis*, 2525.
— — on *Sorbus aucuparia*, 2562c.
— — on tobacco, 3316.
— (?)*ananas* on tomato, 899, 1678.
— *aroideae*, differentiation of *E. cytolytica* from, 408.
— — on Chinese cabbage, 2897.
— — on cotton, 1576, 3456.
— — on onion, 2935.
— — on potato, 1747b, 3301f, 3666j.
— *atroseptica*, differentiation of *E. cytolytica* from, 408.
— — on potato, see Potato.
— *cancerogena* on poplar, 2854.
— *carotovora*, differentiation of *E. cytolytica* from, 408.
— —, effect of antibiotics from *Trichoderma koningii* and *T. viride* on, 1405.
— —, hosts of, 3315.
— — in soil, 3018.
— — on carrot, 1733.
— — on cyclamen, 3315.
— — on lupin, 846.
— — on onion, 2935.
— — on potato, 2029, 3301f.
— —, technique for isolating, 3681.
[*Erwinia*] *chrysanthemi*, *E. cytolytica* on *Dahlia* serologically related and similar to, 408.
— —, in Canada, intercepted from Fla, 3346.
— — on carnation, 1904, 2498.
— *cytolytica* on *Dahlia*, 408.
— *herbicola* on rice kernels, 521.
— *lathyri*, (?)causing oil palm bud rot, 595.
— *multivora* on poplar, 1311.
— *nigrofluens* and *E. rubrifaciens* on walnut, 2281.
— *stewartii* on maize, 1529, 3437.
— *tracheiphila* on *Cucumis*, 2940.
— *vitivora* on grapevine, 2797.
Erysiphaceae control, 1374i.
— of Sweden, monograph on, 449; U.S.S.R., ecological characteristics of, 1037.
—, toxicity of dinitroalkylphenols and crotonic esters to, 1374j.
Erysiphales in Hungary, 3735.
Erysiphe betae on beet, 947, 1035b, 1342.
— *cichoracearum*, conidium of, 767.
— — on *Antirrhinum majus*, 1809.
— — on *Arctium lappa*, 982.
— — on cantaloupe, 715, 2944.
— — on Compositae, 1035b.
— — on cucumber, see Cucumber.
— — on *Cucumis*, 2940.
— — on *Phlox paniculata*, 1809.
— — on squash, 1819.
— — on sunflower, 1222, 1771.
— — on tobacco, see Tobacco.
— —, taxonomic study on, 449.
— — f.sp. *cucurbitacearum* on cucumber, 387.
— — — *nicotianae* on tobacco, 315.
— *communis*, comparison of perfect state of *E. betae* with, 1342.
— — on Ranunculaceae, 539.
— *graminis*, biochemical distinction between physiologic forms of, 1821.
— —, biology of, 2586b.
— —, effect of, on plant respiration, 751.
— — on barley, see Barley.
— — on cereals, see Cereals.
— — on grasses, 1035b, 2122.
— — on oats, 1103, 1820, 3300a.
— — on *Poa pratensis*, 2509.
— — on rye, 1820.
— — on wheat, see Wheat.
— *heraclei* on Umbelliferae, 1035b.
— *martii* on clover, 1809.
— *pisi* on legumes, 1035b.
— *polygoni*, comparison of *E. betae* with, 1342.
— — on bean, 1401, 2598.
— — on cabbage, 3256.
*— — on Chinese mustard, 364.
— — on clover, 240, 2187, 3139.
*— — on Indian mustard, 364.
*?— — on lentils, 2923.
— — on pea, 2003.
— — on turnip, 1783.
— —, technique for establishing single conidial lines of, 2096.
— — +southern bean mosaic virus on bean, 3266.
— *polyphaga*, taxonomy of, 449.
— *trifolii* on legumes, 1035b.
Erythromycin, effect of, on *Xanthomonas campestris*, 1338.
—, inhibition of *Streptomyces* on potato by, 1252.

Ethanol, effect of, on rhizomorph development in *Armillaria mellea*, 1773, 3722; production of, by *Aureobasidium pullulans*, 1773.
Ethoxyquin against pear superficial scald, 1612.
Ethyl alcohol, see Ethanol.
o-Ethylbutylamidothiophosphoric acid, see Phosbutyl.
Ethylene injury to crops in U.S.A., 3701.
—, production of, by fungi, 2607.
Ethylenebisdithiocarbamates, detection of foliar deposits of, 390s.
Ethylene octadithiocarbamate in combination against lime endoxerosis and stylar-end rot, 1131.
Ethyl mercury chloride against fungi on optical instruments, 997.
**Eucalyptus*, *Cylindrocladium quinqueseptatum* on, in Brazil, *Calonectria quinqueseptata* perfect state of, 765.
—, mycorrhiza of, 2602.
—, *Phaeoseptoria eucalypti* on, susceptibility to, 328.
—, *Scleroderma cepa* and *S. verrucosum* on, forming mycorrhiza, method for introducing, 1003.
— *bicostata*, *Phaeoseptoria eucalypti* on, factors affecting deposition and germination of spores of, 1308.
— *grandis*, *Corynespora cassiicola* on, symptoms of, 654.
— *saligna* and *E. tereticornis*, *Cylindrocladium quinqueseptatum* can infect, 765.
**Euchlaena mexicana*, *Pseudomonas andropogonis* on, in Japan, 1171.
Eudarluca caricis, *in vitro* growth of, 2058.
— *filum* on *Puccinia recondita* in Yugoslavia, 2674.
Eugenia aromatica, see Clove.
— *jambos*, *Puccinia psidii* on, penetration by, 2037.
Euonymus europaeus virus, transmission of, by sap, seed, soil and vectors, 3396.
Euparen against *Botrytis* on *Gerbera*, 3459f; *B.* on *Hydrangea*, 3459g; *B. cinerea* on grapevine, 2791, 3173; *Erysiphe cichoracearum* on tobacco, 1278; *Oidium* on *Hydrangea*, 3459g; *Pyrenochaeta terrestris* on tomato, 391e; as soil disinfectant, 391e.
— injury to *Chrysanthemum*, 3131; *Gerbera*, 3459f; *Hydrangea*, 3459g.
Eupenicillium, monograph on, 3737.
Euphorbia, *Fusicladium* on, redescription of, 450.
—, *Uromyces caryophyllinus* on, in Rumania, 1377k.
*— *fulgens*, *Melampsora euphorbiae* on, in Denmark, 730c.
— *pulcherrima*, *Cylindrocladium scoparium* on, 1930.
Eurygaster, *Beauveria bassiana* on, *Melanospora parasitica* parasitizing, 2976.
Euscelis plebejus not transmitting clover enation ?virus, 2515.
— — transmitting clover phyllody virus, 3665a.
Eutettix tenella, see *Circulifer tenellus*.
Exobasidium vexans, production of auxins by, 2060.
Exosporium pampeanum on rye, *E. nattrassii*, resemblance of, to, 1512.

F-10 against *Peronospora tabacina*, 2256.
F427, toxicity of, to *Aspergillus*, basidiomycetes, and Porosporae, 739.
F461 against *Corticium solani* on cotton, 2597.
F-y against *Poria carbonica*, 1334.
Fabraea maculata on pear, 1920, *2587a, 3495.
— — on quince, 1921, 3495.
Fagopyrum esculentum, see Buckwheat.
Fagus, see Beech.
Fennel, see *Foeniculum vulgare*.
Fentin acetate against *Phytophthora infestans* on potato, 3e, 607.
— — in combination against *Septoria apiicola*, 2023.
— hydroxide against *Peronospora farinosa*, 2584r; *Phytophthora infestans* on potato, 3e; *Ramularia beticola*, 2584r.
Fenugreek, see *Trigonella foenum-graecum*.
Ferbam against *Cercospora gigantea* on citrus, 2960c; *Cronartium fusiforme* on pine, 3599; *Helminthosporium heveae*, 1256; *Leptosphaeria salvinii* on rice, 811; lime endoxerosis and stylar-end rot, 1131; *Peronospora arborescens* on opium poppy, 281; *Psilocybe agrariella* on cranberry, 1627; vegetable diseases, 1995.
—, effect of, on *Aspergillus niger* and onion, 3724; on *Vaccinium angustifolium*, 858.
—, methods for determining moisture content of, 3334.
— in combination against lime endoxerosis and stylar-end rot, 1131.
Fermate against *Alternaria solani* on potato, 3186.
Fernusan versus CL-50, 3686.
Fertilizers, effect of, on *Armillaria mellea* on almond, 2215; *Botrytis cinerea* on potato, 3191; *Cercospora coffeicola*, 1133; *Cochliobolus miyabeanus* on rice, 1122; *C. sativus* on barley, 2143; *Corticium solani* on *Hibiscus cannabinus*, 2730; *Diplocarpon rosae*, 1589; *Erysiphe graminis* on cereals, 3407; *Fusarium* on larch, pine, and spruce, 3593; *F. culmorum* on barley, 2143; *F. equiseti* in soil, 1466; *F. oxysporum* f.sp. *lycopersici*, 319; *F. solani* in soil, 1555; *Lophodermium pinastri* on pine, 2865; *Melampsora lini*, 535; microflora in rhizosphere of *Eleusine coracana*, 808; in soil, 808; *Pestalotia* on pine, 3239; *Pestalotiopsis palmarum* on coconut, 3528; *Physalospora obtusa*, 2749; *Phytophthora infestans* on potato, 1238; *Polyspora lini*, 535; *Poria hypolateritia* on tea, 1962; potato virus Y on potato, 1949; *Puccinia graminis* on wheat, 1816; *P. menthae*, 3178; *Pyrenophora teres* on barley, 1101; rice bronzing, 3112; *Rosellinia necatrix* on almond, 2215; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Sclerotium rolfsii* on wheat, 1845; *S. rolfsii* sclerotia, 2071; *Sesamum* phyllody virus on *Brassica* and *Crotalaria*, 3254; *Sphacelotheca reiliana* on maize, 3433; *Sphaerotheca morsuvae* on currant, 2774; *Streptomyces* on potato, 1252; *S. scabies*, 1653, 3664a; *Ustilago maydis*, 1520; *Verticillium* on cotton, 2489; currant, 3159; wheat root rots, 1495.
Festuca, *Claviceps purpurea* on, in U.S.S.R., 1478.
—, wheat streak mosaic virus on, reservoir for, 3411.
— *arundinacea* and *F. arundinacea* × *Lolium multiflorum*, *Claviceps purpurea* on, alkaloid production by and infectivity of, 1419.
— *gigantea*, *Puccinia coronata* f.sp. *festucae* on, *Rhamnus purpureus* alternate host of, 3476.

[*Festuca*] *pratensis*, *Drechslera dictyoides* and *Helminthosporium* on, in Germany (E.), 2743.
— *rubra*, *Claviceps purpurea* on, 1170.
— —, *Drechslera dictyoides* and *Helminthosporium* on, in Germany (E.), 2743.
Fetrillon against Fe deficiency in apple, 567.
Ficus carica, see Fig.
— *elastica* virus, particles of, 1805.
— *glomerata*, *Microxyphiella hibiscifolia* on, in India, 3454.
— *pumila*, *Typhula* on, study on, 543.
Fig (*Ficus carica*) mosaic virus in Turkey, 580; U.S.S.R., 558.
—, *Sporidesmium sicynum* on, in Rumania, 1213.
Flavobacterium, effect of, on *Xanthomonas malvacearum* on cotton, 1897.
Flax (*Linum usitatissimum*), *Aspergillus flavus* on seed of, toxicity of, 1467.
—, boron and calcium deficiency and excess in, 4d.
—, *Colletotrichum linicola* on, var. react. to, 1899.
—, *Corticium solani* on, heterokaryosis and virulence of, 3125; var. react. to, 3450.
— diseases in Argentina, 2117.
—, *Fusarium oxysporum* f.sp. *lini* on, in Bulgaria, 536; Iran, 3063b; U.A.R., 3457; U.S.S.R., 535; control, 536; *Meloidogyne javanica* associated with, 3457.
—, — *semitectum*, *Gibberella fujikuroi*, and *G. f.* var. *subglutinans* on, in U.A.R., 3457; *Meloidogyne javanica* associated with, 3457.
—, *Melampsora lini* on, in U.S.S.R., 535; carbohydrate metabolism in, 2493a, b; effect of actinomycin D on, 33; electron microscopy of, 830; sterols in uredospores of, 1898.
—, *Oidium lini* on, in India, 537.
—, *Phoma exigua* var. *linicola* on, 1442.
—, *Polyspora lini* on, in U.S.S.R., 535.
*—, *Thielaviopsis basicola* on, in Belgium, 2586a.
Fluoride injury to plants in U.S.A., 3700a, 3701; symptoms of, 3700c.
Fluorine, effect of, on apple, cherry, pear, and plum, 248.
Fodder storage disorders, 2584i.
Foeniculum vulgare, *Cercosporidium punctum* on, 450.
Folpet against *Pseudopeziza tracheiphila* on grapevine, 2539.
—, fungicidal activity of, against *Saccharomyces pastorianus*, 3688a, b.
Fomac 2 against *Fomes lignosus* on rubber, 3549d.
Fomannosin, biological activity and production of, by *Fomes annosus*, 665.
Fomes in Hungary, 3736.
— *annosus*, antagonism of actinomycetes to, 1794.
— —, asexual nuclear behaviour and formation of conidia in, 768.
— —, C and N requirements of, 3359.
— — in the air, 3604.
— — on *Abies concolor*, 1330.
— — on Coniferae, 664, 3229.
— — on forest trees, 3219.
— — on pine, see Pine.
— — on spruce, 1329, 2882b.
— —, production of fomannosin by, 665.
— *ellisianus* on ash, 647.
— *fomentarius*, hosts of, 1702.
[*Fomes fomentarius*] on birch, 680.
— — on oak, 1702.
— — on spruce, 680.
— — on timber, 679, 680.
— — on trees, 1994.
— *fraxinophilus* on ash, 647.
— *igniarius* on *Acer saccharum*, 649, 1973.
— — on aspen, conspecific with *F. igniarius* f.sp. *betulae*, 914.
— — on timber, 1328.
— — on trees, 1994.
— — f.sp. *betulae* conspecific with *F. igniarius* on aspen, 914.
— *lignosus* on cacao, 2438b.
— — on *Hevea* rubber, 615, 1257, 3549d.
— *megaloporus*, *Polyporus megaloporus* should be renamed, 1331.
— *noxius* on cacao, 2438b.
— — on *Hevea* rubber, 615, 880a.
— — on kola, 2438c.
— — on oil palm, 596, 872.
— *pini* on pine, 667.
— — on spruce, 673.
— — on trees, 1994.
— *pinicola* on oak, 1702.
— — on spruce, 673, 674.
— — on trees, 1702.
— *pomaceus*, effect of apricot apoplexy tannins on growth of, 1205.
— *roseus* on timber, 681.
*— *subroseus* on aspen, 2562f.
— *torulosus* on ornamentals, 1147.
— — on trees, 1994.
*— — f.sp. *cercidis* on ornamentals, 1147.
— *tremulae*, effect of antibiotics on, 2388.
— —, inhibition of, by fungi on aspen, 2279.
— — on aspen, see Aspen.
Forest Research Institute, Norwegian, account of organization and work of Division of forest pathology and entomology, 902.
— trees, *Ascochyta* on, in U.S.S.R., biology of, 2433.
— —, *Corticium solani* on, 2284.
— —, *Dentipratulum bialoviesense* on, in Poland, 323.
— —, diseases of, in Africa and Asia, 921; Canada, Mexico, and U.S.A., 3220; U.S.S.R., 901; control, 901, 921; F.A.O. report on, 3220; study on, 3221.
— —, *Fomes annosus* on, in U.K., susceptibility to, 3219.
— —, fungi on, in Czechoslovakia, 322; Hungary, 324; Poland and U.S.A., 323.
— —, *Lophodermium pinastri* on, in N.Z., 919a.
— —, mycorrhiza of, effect of soil disinfectants on, 1410; review of, 1767.
— —, *Naemacyclus niveus* on, in N.Z., 919a.
— —, *Poria albidofusca* on, in Poland, 323.
— —, *Pythium debaryanum* on, 2284.
— —, relationship of rhizosphere and soil fungi to, 2284.
— —, *Trametella extenuata* and *T. trogii* on, in Poland, 2563.
— —, Uredinales on, in India, key to, 644.
— —, virus diseases of, 3219d; in Europe, 1043.
Formaldehyde against *Cercospora insulana* on *Limonium sinuatum*, 3470; *Chaetomium olivaceum* on mushroom, 727; *Fusarium oxysporum* f.sp. *melonis* on melon, 978q, 2349; *Helminthosporium allii* on garlic, 1377j; *Mycogone perniciosa* on mushroom, 3661; *Papulospora byssina* on mushroom, 727; *Plasmodiophora brassicae* on cabbage,

2307; *Rhacodiella vitis* on vine, 1934; *Streptomyces scabies* on potato, 1377g; as seed treatment for *Capsicum*, 720; for spinach, 3261; as soil disinfectant, 390g, 951, 1675, 3126, 3127.
[Formaldehyde], effect of, on *Fusarium oxysporum* f.sp. *pisi* on pea, 951; on *Mucor*, *Penicillium*, and *Trichoderma* in soil, 978q; on *Ustilago avenae* and *U. hordei*, 1853.
— ineffective against *Ophiobolus graminis* on wheat, 2584m.
Formol ineffective against damping-off of tobacco, 1381e.
Fragaria, see also Strawberry.
— *vesca*, strawberry crinkle virus on, symptoms of, 1928.
Fraxinus, see Ash.
Freesia, *Fusarium oxysporum* on, in Netherlands, 3459e.
—, *Gibberella fujikuroi* on, control, 390g.
Frost injury to broad bean, 1726; pine, 2878.
Fruit, *Agrobacterium tumefaciens* on, control, 3322.
— diseases in U.S.S.R., 1598; control, 986u; Rumanian book on, 3312.
—, *Fusarium equiseti* on, in Israel, 1466.
—, *Guignardia citricarpa* on, control of spraying injury to, 2032k.
— storage disorders, review of work on, 847.
—, virus diseases of, in Germany, review of work on, 2637.
— trees, fungi on, list and review of, 247.
— —, *Rosellinia necatrix* on, in Iran, 3064.
— —, *Sclerotinia cydoniae*, *S. fructigena*, and *S. laxa* on, in U.S.S.R., 3486.
— —, virus diseases of, in Bulgaria, 2100; U.S.S.R., 558.
Fruits, tropical, *Colletotrichum musae* on, 1628.
Fuclasin against *Coniella diplodiella* on grapevine, 1935.
— F against *Sclerotinia linhartiana* on quince, 397h.
— ultra against *Peronospora parasitica* on cabbage, 2896; *Plasmodiophora brassicae* on cabbage, 2307; *Polystigma rubrum* on plum, 2528; *Sclerotinia linhartiana* on quince, 397h.
Fumazone as soil disinfectant, 3595a.
Fungal hyperparasites, mode of action of, 2036.
— symbiosis, Presidential address to British Mycological Society on, 2049.
Fungi, Advanced treatise on, Vol. III, The fungal population, 3676.
—, biology of wood destroying, translation of Czech book, 1698.
—, electrophoretic patterns of proteins in identification of, 2626.
—, list of, in Hungary, 44, 1437, 2619, 3735, 3736; in Iran, 2114; S.W. Pakistan, 3734; Portugal, 2078; Zambia, 84.
—, lists of, see also Mycoflora.
— on timber, German book on, 1699.
—, transport of nutrients in mycelium of, 2611a, b.
—, hypogeous, ecology of, in Torino Arboretum, 3706.
—, mycotrophic, effect of organic N: carbohydrate ratio on, 36.
—, nematophagous, 3331; ecology of, 3364c; interaction of *Aphelenchus avenae* and, in dual culture, 3029.
*—, thermophilic, in India, isolation of, 3674.
Fungicide-nematocide tests, Results of 1967, publication on, 2377.
Fungicides Vol. 1, Agricultural and industrial applications; environmental interactions, 1395.
—, analytical methods for, 3326.
—, antagonism and synergism of, review of literature on, 3328.
—, distribution and residues of, 3330.
—, effect of, on photosynthesis in plants, 993; on resistance to plant diseases, 16.
—, guide to new compounds, 3325.
—, methods for determining moisture content of, 3334.
—, official FDA tolerances, annual revision of, 2979.
—, Polish manual for crop protection by, 2980.
—, review of literature on, 1762; of methods for testing in U.S.S.R. against *Tilletia caries* and *T. foetida*, 1841; of mode of action and toxicity of, 2600; of properties affecting deposits of, 1376g.
—, Rumanian, action of, 3333.
—, selectivity tests of, 2601.
—, technique for assaying against *Leptosphaeria salvinii*, 3336; for determining penetration of, in plant tissues, 3329.
—, vapour action of, against powdery mildews, 418.
Fungitox against fungi on cucumber, 2581.
Fungus growth and metabolism, effect of gaseous environments on, 3713.
— spores, disintegration of, 3728.
**Furcaspora pinicola* on *Abies concolor*, 2861.
Furidazole as seed treatment for cereals, 1819.
—, effect of, on *Erysiphe cichoracearum* on squash, 1819.
Fusarium acuminatum on Leguminosae, 2319.
— — on lupin, 2190, 2319.
— *argillaceum* on tobacco, 3565.
— *avenaceum*, antagonism of mycolytic soil bacteria to, 2074.
— — associated with clover 'purple patch' in W. Australia, 241.
— — in soil, 1781.
— — on carnation, 3126.
— — on lupin, 2190.
— — on maize, 1111, 1861.
— — var. *herbarum* on Leguminosae and lupin, 2319.
— *batatatis* on sweet potato, 2248.
— *betae* on beet, stored, 2903.
*— *bulbigenum* on Cruciferae and onion, 683.
— — var. *blasticola* on spruce, 3242.
— *caeruleum* on potato, see Potato.
— *culmorum*, antagonism of *Cephalosporium gramineum* and *Trichoderma* to, 3027.
— —, hosts of, 1094.
— — in soil, 810, 1781.
— — on barley, 2143.
— — on maize, 1110, 1111, 1861.
— — on wheat, 124, 401a, 1093.
— *dimerum*, effect of C and N sources on growth of, 1418; of makrolin on, 2983; of S-3 on, 2982.
— — on wheat, 2132.
— *episphaeria* in soil, 810.
— *equiseti* in soil, 1466, 1781.
— — on plants and seed, 1466.
— *gibbosum* on cucumber, 2581.
— *hyperoxysporum* on sweet potato, 2248.
— *javanicum* in soil, 2884.
— — on lupin, 2190, 2319.

[*Fusarium javanicum*] var. *radicicola*, antagonism of soil bacteria to, 2074.
— — — — on cucumber, 2581.
— *lateritium*, effect of biotin on, 2056; of organic N: carbohydrate ratio on, 36.
— (?)— f.sp. *ciceri* on *Cicer arietinum*, 3280.
— *orthoceras* f.sp. *lentis* on lentil, 435.
— *oxysporum*, antagonism of antibiotic from *Rhizopogon roseolus* and *Tricholoma saponaceum* to, 1764.
— —, associated with clover 'purple patch' in W. Australia, 241.
— —, ecology and pathogenicity of, 39.
— — in sewage, 2392.
— — in soil, 40, 810, 1427, 2073, 2484.
— —, inhibition of, by difolatan and quintozene, 3305a.
— —, nuclear division in, 3376.
— —, nutrient requirements for fusac acidri synthesis by, 2590b.
— — on *Asparagus*, 2032h.
— — on barley roots, 1022b.
— — on beet, stored, 2903.
— — on broccoli, 2435.
— — on *Capsicum*, 720.
— — on clover, 555, 2188.
— — on cotton, 2435.
— — on cucumber, 2581.
— — on *Freesia*, 3459e.
— — on larch cones, 2300.
— — on Leguminosae, 2319.
— — on lucerne seed, 1176.
— — on lupin, 694c, 2190, 2319.
— — on maize, 1111.
— — on oil palm, 595, 3532.
— — on pea, 694a, c.
— — on pine, 923, 1318, 2863b.
— — on *Setaria italica* seeds, 2154.
— — on sorghum, 2153.
— — on tomato, 1302, 2435.
— — on *Trichosanthes dioica*, 3061.
— — on vetch, 2032f.
— — on wheat, 496, 1495.
— —, protein patterns in, 3374.
— —, review of literature on, 39.
— —, sporostatic products of, 2052.
— —, sterol and fatty acid components of mycelium of, 436.
— — + *Meloidogyne hapla* on *Chrysanthemum*, 225.
— — f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
— — — *albedinis* on date palm, 284.
— — — *apii* on pea, 695.
— — — *asparagi* on *Asparagus*, 1a.
— — — *batatas* on tomato, 1295.
— — — *callistephi*, heterokaryosis in, 1790.
— — — — on aster, 3063b.
— — — *cepae* on onion, 2021.
— — — *conglutinans* on cabbage, *683, 3256.
*— — — — on Cruciferae and onion, 683.
— — — *cubense* on banana, see Banana.
— — — *cumini* on cumin, 279, 866, 867.
— — — *dianthi* on carnation, see Carnation.
— — — *gladioli*, *Aphelenchoides composticola* and *Ditylenchus myceliophagus* on, 2077.
— — — — on *Gladiolus*, see *Gladiolus*.
— — — *lactucae* on lettuce, 2580.
— — — *lagenariae* on *Lagenaria vulgaris* var. *hispida*, 1366.
— — — *lini* on flax, see Flax.
— — — — on linseed, 1578.
— — — *lupini* on lupin, 1743c.
[*Fusarium oxysporum* f.sp.] *lycopersici*, effect of 5-bromouracil on production of fusaric acid by, 1015.
— — — —, inhibition of cellulase from, 1296.
— — — *melonis*, *Aphelenchoides composticola* on, 2077.
— — — —, biotin requirement by mutant str. of, 1368.
— — — —, *Ditylenchus myceliophagus* on, 2077.
— — — — on melon, see Melon.
— — — *perniciosum* on *Albizia julibrissin*, 1681.
— — — *phaseoli* on bean, *953, *1723, 2323b.
— — — *pisi* on pea, see Pea.
— — — —, utilization of pisatin by, 1722.
*— — — *spinaciae* on spinach, 2316.
— — — *tracheiphilum* on soybean, 1939.
— — — — on tomato, 1295.
— — — *tulipae* on tulip, 231, 844, 1165.
— — — *vanillae* on vanilla, 2960f.
— — — *vasinfectum*, effect of anabasin and benzthiazolyl-thioacetic acid on, 1012, 1013; antibiotics from *Trichoderma* spp. on, 1405; phenolic compounds on, 3666k.
— — — — in soil, 2484.
— — — —, inhibition of, by mushroom, 2954.
— *poae* on barley and Leguminosae, 2321.
— — on maize, 1111, 1112.
— — on pea, 2321.
— *redolens* on carnation, 3459a.
— — f.sp. *dianthi* on carnation, 1c, 3069.
— *roseum* in France, hosts of, 99.
— — in soil, 810.
— —, nutrition of, 756.
— — on cantaloupe, 2582.
— — on carnation, 1582, 2356e, g, 3464.
— — on cereals, 1077.
— — on clover, 2188.
— — on *Coronilla varia*, 541.
— — on cotton, 528.
— (?)— on *Hibiscus cannabinus*, 1579.
— — on tomato, 898, 3218.
— — on turf, 551.
— — + *Verticillium alboatrum* on cotton, 528.
— — f.sp. *cerealis* 'Culmorum' in soil, 3430.
— — — — — on cereals, 1818.
— — — — — on oats, 3430.
— — — — — on wheat straw, 2131, 3430.
— — — *phaseoli* on bean, 2323a, b.
— — 'Avenaceum' on clover, 3141.
— — 'Gibbosum' on banana, 2221.
— *sambucinum* on lupin, 2190.
— — on potato, 3184.
— — var. *minus* on Leguminosae, 2319.
— *scirpi* on maize, 1111.
— — on wheat, 496.
— — f.sp. *acuminatum*, antagonism of soil bacteria to, 2074.
— *semitectum* on flax, 3457.
— — on wheat, 2132.
— *solani*, effect of S-3 on, 2982.
— —, hosts of, 1016.
— — in sewage, 2392.
— — in soil, 760, 810, 1555, 2073.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on cantaloupe, 2582.
— — on clover, 555, 2188.
— — on cotton, 204.
— — on groundnut, 3645.
— — on guava, 3168, 3514.
— — on *Hibiscus cannabinus*, 3457.
— — on lime, 194.

[*Fusarium solani*] on *Matthiola*, 3126.
— — on oil palm, 3532.
— — on papaw, 3061.
— — on pine, 2863b.
*— — on poplar, 913.
— — on potato, 2237, 2816.
— — on spinach, 3261.
— — on teak, 3591.
— — on tomato, 2840.
— — on vegetables, 2893.
— — on wheat, 1495.
— — f.sp. *cucurbitae*, membrane functions and tolerance to diphenyl in, 1402.
— — — — — on *Momordica charantia*, 3061.
— — — — — on squash, 1367, 2583.
— — — *phaseoli*, effect of *Aphelenchus avenae* on, 2076; tannins on spore germination and growth of, 1775.
— — — — — in soil, see Soil.
— — — — —, loss of antagonism by *Chaetomium cochlioides* and *C. globosum* to, 2910.
— — — — — on bean, see Bean.
— — — *pisi*, effect of *Aphelenchus avenae* on, 2076.
— — — — —, inhibition of, by *Streptomyces rimosus*, 978d.
— — — — — on pea, 2322, 2908.
— — — — — +*Pythium* on pea, 952.
— — var. *coeruleum* on lupin, 2190, 2319.
*— — — *minus* on coffee, 202.
— *sporotrichioides* on wheat, 496.
— *stilboides* on coffee, 399d, 1558, 1891.
— — on orange, 818.
— *udum* on pigeon pea, 374.
*— *versiforme* on *Hosta*, 2732.
Fusicladium effusum on pecan, 1686, 3584.
— *fautreyi*, description of, 450.
*— *fraxini* on ash, 3219.
Fusicoccum amygdali on almond, 854, 2770, 3500a, b.
— — on peach, 1202, 2213.
Fytostrep against (?)*Pectobacterium parthenii* on *Dieffenbachia*, 3459d.

Gaillardia pulchella, *Entyloma compositarum* on, in Yugoslavia, (?) introduced from N. America, 1585.
Gamma radiation, effect of, on *Erysiphe graminis* on barley, 500.
— — in combination against fungi on citrus, 2717.
Ganoderma in Hungary, 3736.
— *applanatum* on citrus, 817.
— — on ornamentals, 1147.
— — on timber, 679.
— — on trees, 1994.
— *boninense* and *G. chalceum* on oil palm, 1945.
— *lucidum*, formation of phenoloxidases in, 3008.
— — on *Casuarina equisetifolia*, 3580.
— — on oil palm, 872.
— *miniatocinctum* on oil palm, 1945.
— *pfeifferi* and *G. resinaceum*, formation of phenoloxidases in, 3008.
— *tornatum*, *G. xylonides*, and *G. zonatum* on oil palm, 1945.
Garlic (*Allium sativum*), *Helminthosporium allii* on, in Rumania, 1377j.
—, *Heterosporium allii* f.sp. *allii-sativi* on, description of, 451.
— mosaic virus on garlic, control, 1745m.
[Garlic], *Sclerotium cepivorum* on, 3611; effect of volatile products from, on sclerotial germination, 2932.
Geotrichum candidum, inhibition of, by syringomycin, 1203.
— — in sewage, 2392.
— — on lemon, 2720.
— — var. *citri-aurantii* on citrus, 2717.
Gerbera, *Botrytis*, *Phytophthora cryptogea*, and *Verticillium* on, in Netherlands, 3459f.
*— *jamesonii*, tobacco rattle virus on, in Netherlands, 1157.
Germisan as seed treatment for rye, 146; sunflower, 2231.
Gibberella avenacea on cereals, 1818.
— *baccata* on *Hibiscus cannabinus*, 3457.
— *fujikuroi*, assimilation of nitrite by, 753.
— —, associated with clover 'purple patch' in W. Australia, 241.
— —, effect of phosphoric acid derivatives on, 1763.
— — in soil, 810, 2484.
— — on banana, 2782.
— — on cotton, 1575.
*— — on *Dendrobium phalaenopsis*, 2180.
— — on *Dracaena*, 1584.
— — on flax, 3457.
— — on *Freesia*, 390g.
— — on maize, see Maize.
— — on *Pleomela*, 1584.
— — on rice, 520, 1865b.
— — on sorghum, 2153.
*— — on sugarcane, 3553.
— — var. *subglutinans* on *Asparagus*, 2032h.
— — — — — on flax, 3457.
*— — — — on *Nerine bowdenii*, 1159.
— — — — — on wheat, 2132.
— *zeae*, antagonism of soil bacteria to, 2074.
— —, associated with clover 'purple patch' in W. Australia, 241.
— —, effect of diurnal temp. fluctuations on, 1413; of pH on, 3358.
— —, hosts of, 1094.
— — on maize, see Maize.
— — on vetch, 1915.
— — on wheat, 495, 496, 1495.
— — on wheat straw, 123, 124, 3086.
Gibberellic acid, effect of, on tobacco leaf curl virus on tomato, 634; on tomato aspermy virus, 3212.
Gibberellin, system for naming, 984.
**Gilmaniella humicola* on potato, 1649.
*Ginger (*Zingiber officinalis*), *Pseudomonas solanacearum* on, in Queensland, biotypes of, 280.
Ginkgo biloba, resistance of, to micro-organisms, 1316.
Gladiolus, aster yellows virus and bean yellow mosaic virus on, in U.S.S.R., 2366.
*—, *Curvularia trifolii* f.sp. *gladioli* on, in India, 3469.
— diseases in France, identification table for, 3134.
—, *Fusarium oxysporum* f.sp. *gladioli* on, control, 1907; cultural studies on, 1908.
—, *Penicillium gladioli* on, cultural studies on, 1908.
—, *Sclerotinia draytonii* on, in Argentina, damage caused by, 2182.
*—, *Septoria gladioli* on, in India, 544.
— ?virus disease in Brazil, symptoms of, 2181.
Glass, fungi on, evaluation of fungicides against, 997.

Gliocladium deliquescens and *G. fimbriatum*, antagonism of, to *Trametes sanguinea*, 2304.
Gloeocercospora sorghi on sorghum, 594, 1113i, l, 1536.
*— — on *Vetiveria zizanioides*, 594.
Gloeosporium albo-rubrum on *Hevea* rubber, see Rubber.
— *ampelophagum* on grapevine, 2538.
— *amygdalinum* on almond, 855, 1924.
— *concentricum* on Brussels sprouts, broccoli, cabbage, and turnip, 939.
— *olivarum*, toxin from, 3666g.
— *polystigmicola*, parasitizing *Polystigma rubrum* on plum, 563.
— *psidii* on guava, 2784.
— *quercinum* imperfect state of *Gnomonia quercina*, 911.
Gloeotinia temulenta on *Lolium perenne*, 2509.
Glomerella cingulata, antagonism of soil bacteria to, 2074.
— —, factors affecting sporulation of, 434, 1414.
— —, heterokaryosis in, 456.
— — in soil, 1431.
— —, morphological variability of, 456a.
— — on apple, 1073, 1603, 3007.
— — on *Arceuthobium americanum*, 337.
— — on avocado pear, 3167.
— — on banana, 1415, 1416.
— — on *Capsicum*, 720, 980c.
— — on citrus, 432, 2062, 2717.
— — on coffee, see Coffee.
*— — on *Dalbergia sissoo*, 1682.
— — on *Hevea* rubber, 3059b.
?— — on *Hydrangea hortensis*, 3135.
— — on *Litchi chinensis*, 864.
— — on lupin, 1596.
— — on mango, 432, 2062.
— — on onion, 2021.
— — on orange, 818.
*— — on *Plumeria acutifolia*, 548.
— — on *Salix*, 336.
— — on yam, 432.
— — on *Zizyphus jujuba*, 3170.
— —, pectolytic enzymes of, 1769h.
— —, spore germination of, 433.
— —, utilization of monosaccharides by, 26.
— — var. *orbiculare*, factors affecting sporulation of, 1414.
— *glycines* on soybean, see Soybean.
— *gossypii* on cotton, see Cotton.
— *tucumanensis*, C.M.I. description of, 42.
— — on sugarcane, see Sugarcane.
— —, physiological study on, 618.
**Glonium pyricolum* on pear, 86.
Glycerine in combination against *Xanthomonas campestris* on cabbage, 996.
Glycerol as wound dressing, 3496.
Glycine, effect of, on *Agrobacterium tumefaciens*, 1391.
Glycine max, see Soybean.
Glyodex against *Venturia inaequalis*, 4a.
Glyodin against *Cercospora nicotianae* on tobacco, 2831.
— in combination against *Venturia inaequalis*, 3491.
Gnomonia erythrostoma on apricot, 1619.
*— *fragariae* on strawberry, 1743x.
— *leptostyla* on walnut, 917, 2280, 2759.
— *platani* on *Acer pseudoplatanus*, 911, 2273.
— *quercina* on oak, 911.
— *rubi* on blackberry and rose, 2357d.
Gnomoniaceae on fruit, 1598.
Godronia cassandrae, hosts of, 2565.
— *fuliginosa* on aspen and *Salix*, 3588.
Gomphrena globosa, *Hippeastrum* mosaic virus on, 540.
— —, potato virus X on, 2254; factors affecting resistance to, 778.
— —, — — — ring spot str. on, inhibition of, by chemicals, plant extracts, and *Trichothecium roseum*, 470a.
— —, red clover vein mosaic virus on, effect of mannose on, 1461.
— —, strawberry mottle virus can infect, 1625.
Gonatobotrys zeae on maize, 3305b.
Gooseberry (*Ribes grossularia*), *Cronartium ribicola* on, specialized form of, 3506.
—, *Pseudopeziza ribis* on, sexual development in, 1440.
—, *Puccinia pringsheimiana* on, in U.S.S.R., 1927.
—, *Septoria ribis* on, control, 2772.
—, *Sphaerotheca mors-uvae* on, control, 2531; evaluation of fungicides against, 20; overwintering of, 2773.
— veinbanding virus on gooseberry, methods for producing virus-free plants, 3162a.
Gossypium, see Cotton.
Gramicidin, effect of, on *Fomes tremulae*, 2388.
Gramineae, barley yellow dwarf virus on, in U.S.S.R., 232.
—, *Cochliobolus carbonum* on, genetics of, 3480.
—, pyrenomycetes on, in Fennoscandia, taxonomy, of, 763a, b, c.
— virus diseases in U.S.S.R., 232.
—, wheat mosaic and wheat streak mosaic viruses on, in U.S.S.R., 232.
Gramoxone against *Phytophthora infestans* on potato, 2241.
Granosan against *Ustilago avenae* on oats, 1511; as seed treatment for cabbage, 1339; *Capsicum*, 720; *Cicer arietinum*, 2009; maize, 3096; rye, 146; soybean, 2920; sunflower, 2231; wheat, 120, 1491, 2446.
— in combination as seed treatment for wheat, 1491.
— M against *Alternaria macrospora* on cotton, 1143.
Grapefruit (*Citrus paradisi*), citrus exocortis virus on, in Japan, colour test for, 2165.
—, — greening virus on, in India, symptoms and transmission of, by vectors, 2167 .
—, — 'impietratura' virus on, 1881; effect of rootstock on, 188, 1123a.
—, — stubborn disease virus on, symptoms of, 187.
—, — tristeza virus on, in India, 522.
—, *Xanthomonas citri* on, in Argentina, 1556.
Grapevine (*Vitis*), *Agrobacterium tumefaciens* on, in Bulgaria, 2541; Chile, 581.
—, *Alternaria* on, in U.S.S.R., 274.
—, *Arabis* mosaic virus on, detection and incidence of, 5836.
—, *Botrytis cinerea* on, in Austria, 2030; France, 1743i; U.S.S.R., 2538; apothecial state of, 2227; control, 276, 3971, 1743i, 2538, 2791, 2792, 2796, 3172, 3173, 3521, 3522; factors affecting, 1936, 3521; symptoms of, 2538.
— canker, ?*Agrobacterium tumefaciens* and frost causing, 2540.
—, *Cercospora* on, in U.S.S.R., 274.
— chrome mosaic virus, effect of gel filtration on, 1216, 1744a.

[Grapevine chrome mosaic virus] on grapevine, transmission of, by grafting, 1215.
—, *Coniella diplodiella* on, control and factors affecting, 1935.
— corky bark virus on grapevine in Mexico, 2789.
—, *Cryptosporella viticola* on, in U.S.A., 1218.
— disease in Hungary, resemblance of, to grapevine rugose wood, 3519.
— diseases in Chile, 581; Mexico, 2789; U.S.A., 3516; Rumanian book on, 3312.
—, *Elsinoe ampelina* on, in S. Australia, 1217; U.S.S.R., 1634; control, 1217, 1634, 3171; factors affecting, 1634.
—, *Erwinia vitivora* on, blackening caused by, 2797.
— fanleaf virus, effect of pH on negative staining of, 2790.
— — — on *Chenopodium amaranticolor* and *C. quinoa*, 469.
— — — on grapevine, 396; in Bulgaria, 1632; Chile, 581; Israel, 3518; Italy, 2226; Mexico, 2789; control, 581; detection of, 583b, 1632; incidence of, 583b; transmission of, by grafting, 1215.
— — —, technique for inoculating *Xiphinema index* with, 2537.
—, fungi on, list and review of, 247.
—, *Fusarium* on, control, 3173.
—, *Gloeosporium ampelophagum* on, in U.S.S.R., 2538.
— infectious degeneration virus on grapevine in Switzerland, effect of soil treatment against vectors, 2589.
— leafroll virus on grapevine in Bulgaria, 1632; Chile, 581; Israel, 3518; Mexico, 2789; anatomic effects and history of, 865; control, 581; detection of, 1632.
*—, *Massariella viticola* on, in U.S.S.R., 86.
— necrotic ring spot, development and symptoms of, 2747.
—, *Penicillium claviforme* and *P. martensii* on, diagnoses of, 3523.
— pests and diseases, monograph on, 273.
—, *Phoma* on, aetiology of, 2795.
—, *Phomopsis viticola* on, in Italy, 2226; aetiology of, 2795.
—, *Phymatotrichum omnivorum* on, in Mexico, 2789.
—, *Plasmopara viticola* on, in France, 1743i; Italy, 2226; Mexico, 2789; Rumania, 1377o; S. Australia, 1217; U.S.S.R., 2538; control, 392a, 396, 1217, 1377o, 1396, 1398, 1743i, 2225, 2226, 2379a, 2538, 2791, 2792; factors affecting, 1377o, 1633, 2226; forecasting of, 1808; methods for assessing efficiency of control, 2379a; symptoms of, 2538; technique for determining spore composition in, 1374p.
—, *Physopella ampelopsidis* on, C.M.I. description of, 3731a.
—, *Pseudopeziza tracheiphila* on, in Austria, 587; France, 275; Germany, 272; Switzerland, 2539; control, 1219, 2225, 2539; epidemiology of, 2797; factors affecting, 272, 275, 1219, 2539; symptoms of, 587; var. react. to, 275.
—, *Rhacodiella vitis* on, in U.S.S.R., 1934, 2538; control, 1934, 2538, 3520; development of, 3520; factors affecting, 3520; symptoms of, 2538, 2797; var. react. to, 588.
—, *Rhizoctonia* on, control, 3173.
— storage disorders, effect of temp. on, 276.
[Grapevine], tobacco mosaic virus on, in U.S.A., 3517; detection of, 583a, b; incidence of, 583b; transmission of, 2224.
—, tomato black ring virus on, detection and incidence of, 583b.
—, — bushy stunt virus on, in Germany, demonstration of, 1214.
—, toxicity of Cu preparations to, 2791.
—, *Uncinula necator* on, in Chile, 581; France, 1743i; Italy, 2226; Mexico, 2789; S. Australia, 1217; U.S.S.R., 274, 2538; C.M.I. description of, 1035b; control, 274, 392a, 581, 584, 1217, 1743i, 2226, 2538, 2791, 2792, 2793; factors affecting, 2226; forecasting of, 1808; importance of ascus stage of, 3303; inoculation of, 586; overwintering of, 586; symptoms of, 2538; var. react. to, 583, 586; warning system against, 397g.
— virus diseases in Bulgaria, 1632, 2100; Mexico, 2789; control, 2747; development and symptoms of, 2747; technique for inoculating, 582.
— yellow mosaic and yellow vein viruses on grapevine in Bulgaria, detection of, 1632.
Graphium persica on peach, 2767.
— *roborum* on oak, 329.
Grass, Guatemala, see *Tripsacum laxum*.
Grasses (see also Gramineae and Turf), *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, *Bromus* mosaic virus on, 1167.
—, *Cercosporella herpotrichoides* on, 2357h.
—, *Claviceps purpurea* on, 1170; in France, 118.
—, *Corticium fuciforme* on, in Germany, 394i.
—, **Curvularia robusta* on, in U.S.A., symptoms of, 234.
—, diseases of, review of resistance to, 1591.
—, Erysiphaceae on, in U.S.S.R., 1037.
—, *Erysiphe graminis* on, in U.S.S.R., 2122; C.M.I. description of, 1035b; ff.sp. of, 2122.
—, foot rot of, 1094.
—, *Puccinia graminis* on, physiologic rāces of, 3404.
—, pyrenomycetes on, in Fennoscandia, 763a.
—, virus diseases in Britain, review of, 3474.
—, wheat streak mosaic virus on, reservoir for, 3411.
Greengage (*Prunus domestica* var. *italica*), plum pox virus on, transmission of, to *Chenopodium foetidum*, 2357i.
Griphosphaeria corticola on apple, 1603.
— — on rose, 1746c.
Griseofulvin against *Alternaria solani* on tomato, 3697; *Botrytis cinerea* on lettuce, 3697; *Cochliobolus miyabeanus* on rice, 177; plant diseases in Hungary, 1404.
Groundnut (*Arachis hypogaea*), analysis of endogeocarpic microflora of, 3644.
—, *Aspergillus* on, detection of, 2014.
—, — *flavus* on, 3645; in Nigeria, 2587b, c; Senegal, 1462; U.S.A., 1731d, 3643, 3644; aflatoxin production by, 708, 1462, 2015; association of nematodes with, 376, 3643; control, 1462, 2587c; effect of fast and slow drying on, 1731d; of fungicides and insecticides on, 2016; of wetting on, 3646; factors affecting, 2587b; penetration by, 2359e; technique for isolating, 58.
*—, — *micro-virido-citrinus* on, detection of, 2014.
—, — *niger* on, 3645; in India, 3287; U.S.A., 1731d, 3643; association of nematodes with, 376, 3643; control by crop rotation, 3287; detection of, 2014; effect of fast and slow

drying on, 1731d; of fungicides and insecticides on, 2016; factors affecting, 3287.
[Groundnut, *Aspergillus*] *versicolor* on, 3645.
—, *Bacillus subtilis* on, inhibition of fungi by, 2017.
—, bacteria on, isolation density of, 3644.
—, bean yellow mosaic virus on, in Bulgaria, resistance to, 1460.
*— bud necrosis virus on groundnut in India, transmission of, by grafting, 2927.
—, *Calonectria crotalariae* on, effect of plant age and soil temp. on, 962.
—, *Cercospora* on, in Colombia, 1939.
—, *Chaetomium* on, in U.S.A., 3644.
— chlorotic rosette virus on groundnut in S. Africa, 2925; assistor virus in relation to transmission of, 3640.
— clump in Senegal, aetiology and symptoms of, 83.
*—, *Colletotrichum dematium* on, in India, 961.
—, *Corticium solani* on, in U.S.A., 1731a.
— diseases in Italy, 1807.
— 'fat leg', effect of seed treatment fungicides and seed quality on, 2019.
—, fungi on, in U.S.A., 1731b, c, 3643; control, 1731c; effect of nematodes on, 3643; of seed treatment on, 963, 2338; of soil disinfection on, 1731b; isolation density of, 3644.
—, *Fusarium* on, in Israel, 2579; U.S.A., 3644; detection of, 2014.
—, — on stored, effect of wetting on infection by, 3646.
—, — *equiseti* on stored in Israel, 1466.
—, — *solani* on, 3645.
— green rosette virus on groundnut in S. Africa, transmission of, by grafting and vectors, 3283.
*—, *Leptosphaerulina arachidicola* on, in India, 3642.
—, — *crassiasca* on, in Argentina, India, and U.S.A., 2928.
—, *Macrophomina phaseoli* on, 196; in Senegal, 1462; association of nematodes with, 376; control, 377, 2014; detection of, 2014; factors affecting, 377; study on, 377; var. react. to, 377, 378.
—, — — on stored, effect of wetting on infection by, 3646.
— mottle virus on groundnut in U.S.A. and abroad, screening for immunity from, 2926.
—, mould fungi on, penetration by, 2359e.
—, mycoflora of, composition and distribution of, 2018.
—, *Mycosphaerella arachidis* on, in India, 1730; Malawi, 2013; Rhodesia, 3d; control, 1356; effect of sowing dates on, 1730; of S and Zn+maneb on, 3d; factors affecting, 1730, 2013; var. react. to, 707.
—, — *berkeleyi* on, in India, 961, 1730; Israel, 3285; control, 3284, 3285, 3641; *Cercosporidium personatum* conidial state of, 450; effect of sowing dates on, 1730; factors affecting, 1730, 3285; symptoms of, 3285; var. react. to, 707, 3285.
—, *Penicillium* on, in U.S.A., 3644; detection of, 2014.
—, — *rubrum* on, 3645.
—, *Phyllosticta arachidicola-hypogaeae* on, in (?)Nigeria, 2587c.
—, *Puccinia arachidis* on, in Colombia, 1939.
—, *Pythium* on, in Israel, 2579, 3286; resistance to, 3286.
[Groundnut, *Pythium*] *myriotylum* on, in Israel, 2579; Nigeria, 2587b.
— rosette, aetiology of, 3640.
— — virus on clover, 960.
— — — on groundnut in India, 1728; Malawi, 960; alternate hosts and vectors of, 960; effect of, on flowering, 959; on yield, 1728; transmission of, by vectors, 704; var. react. to, 704.
— — — on *Stylosanthes*, 960.
—, *Sclerotium rolfsii* on, in Colombia, 1939; U.S.A., 1731a; control, 429, 1731a.
— seed and seedling rot in Colombia, 1939.
—, *Sphaceloma arachidis* on, var. react. to,707.
— stunt virus on bean, 1350.
— — — on groundnut in Senegal, 1462; U.S.A., 705, 1350; control, 3282; effect of, on quality and yield, 705; symptomless host of, 3282; transmission of, by seed, 958, 3282.
— — — on tobacco, 3305e.
—, *Trichoderma* on, in U.S.A., 3644.
— veinbanding virus on groundnut in S. Africa, hosts of, and transmission of, by sap and vectors, 706.
—, *Verticillium dahliae* on, in Israel, 3286.
— virus diseases in S. Africa, 1727, 2925.
Guava (*Psidium guajava*), *Fusarium solani* on, in India, 3168, 3514; effect of age on susceptibility to, 3168; entry and severity of, 3514.
—, *Gloeosporium psidii* on, factors affecting, 2784.
—, *Macrophomina phaseoli* on, in India, 3168, 3514; entry of, 3514; factors affecting, 3168.
Guignardia citricarpa on citrus, *2a, 1125, 1126.
— — on fruit, 2032k.
— — on orange, 1127.
Gymnoconia peckiana, non-inhibition of germination of, by extracts from, 31.
Gymnospermae, fungi on, in Estonia, hosts, incidence and morphology of, 2079.
Gymnosporangium on, in U.S.A., key to and review of, 356.
— *clavipes*, non-inhibition of germination of, by extracts from, 31.
— *fuscum* on *Juniperus* and pear, 1920.
— *juniperi-virginianae* on apple, 2203.
— — on *Juniperus virginiana*, 1581.

Halticus tibialis transmitting sweet potato 'little leaf', 879.
Hand spraying versus aerial spraying, 1279.
Haplosphaeria deformans on raspberry, 1209, 3301b.
Haplosporella hesperidica on lime, 819.
Heat treatment against apple viruses, 2191; clover phyllody virus, 3665a; pear viruses, 2191; plant viruses, 1062; potato virus X, 401g; *Prunus* necrotic ringspot virus on rose, 401b; *Puccinia horiana* on *Chrysanthemum morifolium*, 1155; rose yellow mosaic virus on rose, 401b; strawberry crinkle virus on strawberry, 265; sugarcane white leaf disease, 3555; tomato aspermy virus on *Chrysanthemum cinerariifolium*, 390k; *Verticillium malthousei* on mushroom, 1374m.
— — as seed treatment for barley, 3091; for soybean, 2920.
— — ineffective against potato virus S, 401g.
Hebeloma mesophaeum on pine, forming mycorrhiza, 425.
Hedysarum coronarium, *Verticillium dahliae* on, biotin requirements of, 1009.

Heliantheae, *Puccinia* on, autoecious species of, 1791.
Helianthus annuus, see Sunflower.
**Helicobasidium compactum* on *Crotalaria anagyroides* and *Priotropis*, 3203.
*— *purpureum* on *Pseudotsuga menziesii*, 2586a.
Helicotylenchus associated with cherry rasp leaf disease, 3502.
Helix aspersa, inhibitor of tobacco mosaic virus from, 1275.
Helminthosporium in Germany (E.), 2743.
—, trace element studies on, 2063.
— *allii* on garlic, 1377j.
— *anomalum*, effect of makrolin on, 2983; of S-3 on, 2982.
— *atypicum* on wheat, 2457.
— —, pectic enzyme production and morphogenesis in, 3355.
— *australiense* on *Pennisetum typhoides*, 1862.
— *catenarium*, interaction of near-UV light and temp. on sporulation of, 1017.
— *crotalariae*, *H. tetramera* on *Crotalaria juncea* distinct from, 2731.
— *cynodontis* on *Cynodon dactylon*, 2186.
— *dictyoides*, see *Drechslera dictyoides*.
— *euphorbiae* as test fungus, 3691.
— *giganteum*, see *Drechslera gigantea*.
— *halodes*, see *Drechslera halodes*.
— *helianthi* on sunflower, 1222.
— *heveae* on *Hevea* rubber, 880c, 1256.
— *nodulosum* on *Eleusine coracana*, 163, 164, (?)1534.
— *papulosum* on pear, 2590f.
*— *pedicillatum* on maize, 2704.
— *proliferatum* on wheat, 2457.
— *rophaloides* on vegetables, 1995.
— *rostratum* on maize, **Sorghum halepense*, and *Sudan grass, 1113g.
— *sacchari*, see *Drechslera sacchari*.
— *setariae* on *Pennisetum typhoides*, 165.
— *siccans* on *Lolium multiflorum* and *L. perenne*, 2743.
— *sigmoideum* var. *irregulare* on rice, 1537b.
— *solani* on potato, 1251, 3030.
— *spiciferum* on *Cynodon dactylon*, 2186.
— *tetramera* on *Crotalaria juncea*, 2731.
— *vagans* on *Poa pratensis*, 235, 2743, 3479.
Hemp (*Cannabis sativa*), *Colletotrichum coccodes* on, in U.S.S.R., 1900.
—, *Corticium solani* on, in India, 2229.
—, *Pseudomonas cannabina* on, in U.S.S.R., 1900.
— streak virus on hemp in U.S.S.R., 1900.
Henbane (*Hyoscyamus niger*) mosaic virus, Colombian *Datura* virus not serologically identical with, 2647.
— — —, strs. of, 2584d.
Hendersonia, inhibition of fungi on *Acer saccharum* by, 649.
Heptachlor in combination as seed treatment for wheat, 1491.
Heracleum sphondylium, microfungi on, ecology of, 2970a, b.
— — ssp. *australe* virus in Czechoslovakia, *H. s.* ssp. *sibiricum* virus in Finland identical with or related to, 3056.
Herbicides, distribution and residues of, 3330.
—, effect of, on plant growth, 3666h; on soil fungi, 393e.
Hericium abietis on *Abies grandis*, 2858.
Herpotrichia nigra on Coniferae, 663.
Hesperis matronalis, cauliflower mosaic virus on, 2308.
Heterodera gottingiana associated with *Fusarium oxysporum* on lupin, 694c; *F. oxysporum* on pea, 694a, c; symptoms of, 694a.
— *rostochiensis*, interrelationship of tomato grey sterile fungus with, 2842.
— —, non-infection of cysts of, by fungi, 2357g.
Heterosporium allii f.sp. *allii-sativi* on garlic, 451.
— *phlei* on *Phleum pratense*, 2743.
Hexachlorobenzol as soil disinfectant, 2357b.
Hexachlorophene in combination against bacterial spotting of mushroom, 3662.
Hexathane against *Phytophthora infestans* on potato, 2240.
Hibiscus, *Aecidium garkeanum* on and 'purple disease' of, in C. African Rep., 3456.
— *cannabinus*, *Aspergillus* in rhizosphere of, distribution of, 219.
— —, *Cladosporium herbarum* on, in U.S.A., introduced from abroad, 2437.
— —, *Colletotrichum hibisci* on, in C. African Repub., 3456.
— —, *Corticium solani* on, control and factors affecting, 2730.
— —, *Fusarium* (?)*roseum* on, in Iran, 1579.
— —, — *solani* and *Gibberella baccata* on, in U.A.R., *Meloidogyne javanica* associated with, 3457.
— —, *Phytophthora nicotianae* var. *parasitica* on, in C. African Repub., 3456.
— *esculentus*, *Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
— —, *Fusarium solani* on, 1016.
*— *ficulneus*, *Cercospora malayensis* on, in India, 975.
— *manihot* mosaic virus on *Hibiscus manihot* in Papua and New Guinea, host range, symptoms, and transmission of, 2353.
— *mutabilis* and *H. rosa-sinensis*, *Microxyphiella hibiscifolia* on, in India, 3454.
Hippeastrum mosaic virus on *Amaryllis*, 540.
— streak in Papua and New Guinea, 400.
Hirsutella versicolor on *Idioceros*, 738.
Homobasidiomycetes, spore wall in, 1435.
Hop (*Humulus*) infectious sterility virus and hop leaf roll virus on hop in Poland, 277.
—, *Phytophthora* on, in U.S.A., 1636.
—, — *citricola* on, in England, identical with N.Z. isolate, 1635.
—, *Prunus* necrotic ring spot virus on, in England, 2355j.
—, *Pseudoperonospora humuli* on, biology of, 589; control, 1376h, 2228, 3524d; cultures of, 3525; diurnal periodicity in, 3524a; effect of autumn spraying on, 2228; factors affecting, 590, 591, 3524a, b; sporulation of, 3524c; testing fungicides against, 1937.
—, *Sphaerotheca macularis* on, control, 1376h; diurnal periodicity in, 3524a.
—, *Verticillium alboatrum* on, in Germany, 1938; effect of phenolic compounds on, 2606; effect of, on yield, 1938; legislation against, 3174; survival of, 2355e.
*—, — *tricorpus* on, 2658.
Hordeum, *Puccinia graminis* on, spec. react. to, 2660.
— *bulbosum*, *Uromyces christensenii*, *U. hordeastri*, *U. mysticus*, and *U. reichertii* on, in Israel, 137.
— *murinum*, *Uromyces hordeastri* on, in Israel, 137.

[*Hordeum*] *spontaneum*, *Uromyces viennot-bourginii* on, in Israel, 137.
— *vulgare*, see Barley.
Hornbeam (*Carpinus betulus*), *Poria albidofusca* on, in U.S.S.R., 927.
*Horse chestnut (*Aesculus hippocastanum*), *Collybia velutipes* and *Lentinus tigrinus* on, in Rumania, 3579.
Horse-radish (*Armoracia rusticana*), *Albugo candida*, turnip mosaic virus and *Verticillium armoraciae* on, var. react. to, 941.
— virus diseases, control and transmission of, by sap, 1704.
**Hosta*, *Fusarium versiforme* on, in U.S.S.R., 2732.
Hostaquick against *Streptomyces scabies* on potato, 1377g; *Xanthomonas phaseoli* on bean, 1377h.
Host-parasite interactions, 3666a; aromatic compounds in, 986i; cell biological aspects of, 33; genetic, 8; significance of nucleic acid metabolism in, 3661b.
Hot air treatment against sugarcane ratoon stunting virus, 1259a.
— water treatment against *Ceratocystis fimbriata* on sweet potato, 2819; *Corynebacterium michiganense* on tomato, 2843; *Fusarium oxysporum* f.sp. *gladioli* on *Gladiolus*, 1907; *F. roseum* and *F. solani* on cantaloupe, 2582; *Monilochaetes infuscans* on sweet potato, 2819; *Nectria galligena* and *Pezicula malicorticis* on apple, 2205; sugarcane diseases, 3198c; sugarcane ratoon stunting virus, 1259a; *Trichoseptoria fructigena* on apple, 2205; *Xanthomonas albilineans* on sugarcane, 882d; *X. vesicatoria* on tomato, 2843.
— — — as seed treatment, 2118.
— — — — — — for barley, 1377c; cereals, 3406; rice, 812; sesame, 593; wheat, 2128.
Humulus, see Hop.
Hyacinth (*Hyacinthus*), *Penicillium corymbiferum* on, in Germany, 833.
—, — *cyclopium*+*Pseudomonas marginalis* on, effect of, on, 1374o.
Hyalesthes obsoletus transmitting stolbur virus, 1451.
Hyalodendron roborus on oak, 329.
**Hyalopsora aspidotus* on *Abies grandis*, 2860,
Hyamine in combination against *Ceratocystis paradoxa* on sugarcane, 3198d.
Hydrangea, *Botrytis* and *Oidium* on, in Netherlands, 3459g.
— ring spot virus on *Hydrangea* in Italy, purification of, 1158.
— *hortensis*, ?*Glomerella cingulata* on, in India, 3135.
Hydrogen peroxide, effect of, on tree seeds, 1980.
1-hydroxy-3-methylanthraquinone, effect of, on *Trichoderma virgatum* and production of, by fungi on *Chamaecyparis nootkatensis*, 3592.
o-hydroxyquinoline sulphate against *Fusarium oxysporum* f.sp. *gladioli* on *Gladiolus*, 1907.
Hymenochaete agglutinans on *Phoradendron flavescens*, 2851.
Hyoscyamus niger, see Henbane.
Hypera postica, *Beauveria densa* on, susceptibility to, 2596.
Hyphoderma tenue and *Hyphodontia alutaria* on timber, 932.
Hyphomycetes, taxonomy of, 1436, 2082.
Hypochlorite, effect of pretreatment with, on *Curvularia*, *Fusarium oxysporum* and *Gibberella fujikuroi* on sorghum, 2153.
Hypocrea pulvinata, effect of organic N: carbohydrate ratio on, 36.
— *rufa* on apple, 1603.
**Hypocyrta glabra*, *Myrothecium roridum* on, in Germany, 227.
Hypodermataceae, revision of, 47.
Hypodermella ampla on pine, 643c.
Hypomyces solani on poplar, 332.
— — f.sp. *cucurbitae*, perithecium formation by, 437a, b.
Hypoxanthine, effect of, on spore germination in *Phytophthora infestans*, 2549.
Hypoxylon pruinatum on aspen, see Aspen.
— *rubiginosum* on *Hevea* rubber, 2655.
— *serpens* on tea, 621b, 2655.

Iconographia Mycologia Vol. XX, 1031; XXI, 3371.
Idioceros, *Hirsutella versicolor* on, in India, 738.
Idyia fijiensis transmitting *Axonopus* chlorotic streak virus, 845.
Imidazole, fungitoxicity of derivatives of, 2383.
Imidazol-1-ylphosphinamidothionates, fungicidal activity of, 3332.
Impatiens parviflora virus diseases in Czechoslovakia, 1374s.
Inazuma dorsalis not transmitting rice transitory yellowing virus, 3102.
— — transmitting rice yellow orange leaf virus, 2155.
Indian Science Congress Association, volume on Golden Jubilee of, 3304.
Index publs. 1945–1966, Plant Prod. Div., F.A.O., 1748.
Indolelacetic acid, production of, from tryptophan by *Phytophthora*, 2608.
Infra red radiation as seed treatment for barley and wheat, 1479.
Inocybe associated with ectotrophic mycorrhiza of *Afzelia bella* in Nigeria, 2050.
Ipomoea, *Pyrenochaeta terrestris* on, 2119.
— *batatas*, see Sweet potato.
Insects, *Aspergillus* on, mode of action of, 737f.
—, biological and chemical control of, 737c.
— in relation to plant disease, 2nd edition of book on, 1386.
—, *Paecilomyces farinosus* on, factors affecting coremium production and growth of, 1394.
— (?)transmitting *Ceratocystis fagacearum*, 3223; potato virus diseases, 404; viruses, migration of, 395d.
Iris, *Botrytis tulipae* and *Didymella macrospora* on, in U.S.S.R., 2366.
— mild mosaic virus on *Iris*, 838.
— mosaic virus, hosts of, 2183; study on, 390m; transmission of, 2183.
—, *Penicillium corymbiferum* on, in Germany, 833; penetration by wounds, 2500.
—, *Puccinia iridis* on, in U.S.S.R., 2366.
—, *Sclerotinia convoluta* on, effect of soil fungi and temp. on infection, 839.
—, — *draytonii* on, in U.S.S.R., 2366.
— severe mosaic virus on *Iris*, symptomless occurrence of, 838.
—, tulip breaking virus on, in U.S.S.R., 2366.
Iron deficiency associated with citrus decline, 199; pine needle chlorosis, 2298.
— — in apple, 567.
—, effect of, on Barakovo black spot on tobacco, 1673; on growth of *Helminthosporium*, 2063.

[Iron] sulphate against *Elsinoe ampelina* on grapevine, 1634; grapevine canker, 2540; pine needle chlorosis, 2298; *Rhacodiella vitis* on grapevine, 1934; rose diseases, 1164.
Isariopsis griseola, effect of bean exudates on growth of, 755.
— — on bean, see Bean.
*— — on cowpea, 2007.
— — on *Phaseolus mungo*, 700.
Isatis tinctoria, *Colletotrichum higginsianum* on, in U.S.A., introduced from abroad, 2437.
2-isopropyl-4-dimethylamino-5-methylphenyl-1-piperidine carboxylate, see Amo-1618.
Isthmiella crepidiformis on spruce, 2562e.
Itersonilia pastinacae on parsnip, 1063b.
— *perplexans* on *Chrysanthemum*, 390e.
— — on sunflower, 1222.

JF 808 as seed treatment for pine, 3595b.
Johnson grass, see *Sorghum halepense*.
Juglans, see Walnut.
Juniperus, *Gymnosporangium fuscum* on, 1920.
—, *Rhynchosphaeria cupressi* on, in Jamaica, 2958b.
— *chinensis*, *Kabatina juniperi* on, effect of, on, 1317.
— *deppeana*, *Uredo apacheca* on, in U.S.A., description of, 356.
— *horizontalis*, *Kabatina juniperi* on, effect of, on, 1317.
— *monosperma*, effect of H_2O_2 on seeds of, 1980.
— *sabina*, *Kabatina juniperi* on, effect of, on, 1317.
— *scopulorum*, *Cercospora sequoiae* on, in U.S.A., 2862; control, 2271d.
— *squamata meyeri*, *Kabatina juniperi* on, effect of, on, 1317.
— *virginiana*, *Cercospora sequoiae* on, in U.S.A., 2862; control, 2271d.
— —, *Gymnosporangium juniperi-virginianae* on, factors affecting growth of, 1581.
Jute (*Corchorus capsularis* and *C. olitorius*), *Moniliopsis aderholdii* on, form of *Corticium solani*, 455.

Kabatiella caulivora on clover, 3139.
Kabatina juniperi, hosts of, 1317.
Kalanchoe fedtschenkoi, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
Kale (*Brassica oleracea* var. *acephala*), *Plasmodiophora brassicae* on, in Canada, testing for resistance to, 937.
Karathane against *Alternaria citri* on orange, 195; *Erysiphe cichoracearum* on cucumber, 387, 972; *Microsphaera alphitoides* on oak, 910; *Podosphaera leucotricha*, 1918; powdery mildews, 20; *Sphaerotheca fuliginea* on cucumber, 387, 2347.
**Karstenula guttulata* on apple, 86.
Kasugamycin, inhibition of sporulation of *Pyricularia oryzae* by, 515.
Kasumin W.P. against *Pyricularia oryzae* on rice, 1120.
KD1 against *Nectria galligena* on apple, 3302a.
Kerosene, *Cladosporium resinae* on, 3345.
Khuskia oryzae on maize, 1525a, *b, 2476.
— — on rice, 181.
*— — on wheat, 1846.
Kinetin, effect of, on susceptibility of *Nicotiana glutinosa* to tobacco mosaic virus, 1050.
Kirti copper against *Alternaria citri* on orange, 195.
Kochia scoparia, *Cercospora beticola* on, 2314.
Kocide 101 in combination against *Cercospora coffeicola* on coffee, 2960d.
Kojic acid, effect of, on groundnut, 2015.
Kola (*Cola acuminata*), *Botryodiplodia theobromae* and *Fomes noxius* on, in Nigeria, 2438c.
Kumquat (*Citrus* hybrid), citrus tristeza virus on, in Fiji, 2034a.
Kurticopper W.P. 50 against *Pythium aphanidermatum* on tobacco, 3210.

Labiatae, Erysiphaceae on, in U.S.S.R., 1037.
Lablab niger, *Ascochyta phaseolorum* on, in N.S.W., 2032b.
— —, *Cercospora ?dolichi* on stored, in India, 2918.
— —, — *?canescens* on, in N.S.W., 2032b.
— —, *Fusarium solani* on, 1016.
— —, sandalwood spike virus disease on, transmission of, by sap, 1312.
— — storage disorders, 2918.
Laboulbenia geminata on *Isoptera*, 15.
Laccaria amethystina virus disease, 3057.
— *laccata* on pine, forming mycorrhiza, 425.
— — virus disease, 3057.
Lactarius on chestnut, forming mycorrhiza, 424.
Lactuca sativa, see Lettuce.
Lagenaria vulgaris var. *hispida*, *Fusarium oxysporum* f.sp. *lagenariae* on, 1366.
Lannate against beet yellows virus on beet, 2901.
Lanolin as wound dressing, 3496.
Lanstan, analytical methods for, 3326.
— against *Urocystis cepulae* on onion, 3649; as soil disinfectant, 3617, 3436.
Lantana horrida virus, electron microscopy of, 2736.
Laodelphax striatellus transmitting rice stripe virus, 2706.
Larch (*Larix*), *Boletus elegans* on, forming mycorrhiza, 424.
—, fungi on, effect of, on, 3248.
—, *Fusarium* on, factors affecting, 3593.
—, — *oxysporum* on cones of, 2300.
— mycorrhiza in U.S.S.R., 1768.
—, *Trichoscyphella willkommii* on, age of trees in relation to, 2301.
Larix, see Larch.
Larvacide, see Chloropicrin.
Latin-Russian-Byelorussian botanic dictionary, 2369.
Lathyrus cicera and *L. latifolius*, *Erysiphe polygoni* on, 2003.
— *odoratus*, see Sweet pea.
Laurus nobilis, *Ascochyta laurina*, *Colletotrichum nobile*, *Macrophoma georgica*, *Oidium passerinii*, *Pestalotia laurina*, and *Phyllosticta lauri* on, in U.S.S.R., 2501.
*— —, *Phytophthora cinnamomi* on, in U.S.A., 1586.
— —, *Sclerotium rolfsii*, *Venturia nobilis*, and *Verticillium alboatrum* on, in U.S.S.R., 2501.
Lead, toxicity of, to *Aspergillus niger*, 3695.
— arsenate in combination against *Fusicoccum amygdali* on peach, 1202.
Leafhoppers transmitting sugarcane white leaf disease, 3555.
Leek (*Allium porrum*), *Alternaria porri* on, in Ivory Coast, 85.
—, *Sclerotium cepivorum* on, effect of volatile

products and extracts from, on germination of sclerotia of, 2932.
Legislation against plant diseases in Canada, 1766; Denmark, 2684; Germany, 1409, 3704; Greece and Iraq, 999; New Caledonia and Dependencies, 747b; Pakistan, 747a; Spain and Sweden, 2989; U.S.A., 999, 2048, 3705.
Leguminosae, *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, *Astragalus* dwarf virus on, 1712.
—, bean viruses on, in Lithuania, 2317, 2318.
—, — yellow mosaic virus on, in Bulgaria, 1460.
—, cucumber mosaic virus str. on, differentiation of, 75a.
— diseases, 393a.
—, Erysiphaceae on, in U.S.S.R., 1037.
—, *Erysiphe pisi* and *E. trifolii* on, C.M.I. descriptions of, 1035b.
—, *Fusarium* on, in Lithuania, 2319.
—, — *poae* on, effect of, on 2321.
—, groundnut veinbanding virus on, 706.
— leaf diseases, effect of precipitation on, 4e.
—, *Leveillula taurica* on, C.M.I. description of, 3731b.
—, passion fruit woodiness virus can infect, 271.
—, pea viruses on, in Lithuania, 2317, 2318.
—, stimulatory effect of, on growth of *Fusarium solani*, 2073.
—, toxicity of *Streptomyces rimosus* to, 978d.
—, *Uromyces* on, in U.S.S.R., 237.
— virus diseases in Lithuania, 2317, 2318; U.S.S.R., 693; control, 64.
Lemon (*Citrus limonia*), *Candida krusei* on, differentiation of, from *Geotrichum candidum*, 2720.
—, citrus crinkly leaf virus on, reinfection of, by subcortical injections, 2165b.
—, — exocortis virus on, in Japan, colour test for, 2165.
—, — 'impietratura' virus on, in Cyprus, 1123a.
—, — infectious variegation virus on, reinfection of, by sub-cortical injections, 2165b; transmission of, mechanically, 2715.
—, — stubborn disease virus on, symptoms of, 187.
—, — tristeza virus on, in India, 522; U.S.A., 1552.
—, *Penicillium* on, control, 197.
—, *Sclerotinia sclerotiorum* on, in Italy, 525.
—, *Xanthomonas citri* on, in Argentina, 1556.
Lens esculenta, see Lentil.
Lentil (*Lens esculenta*), diseases of, in Iran, 3262.
*—, ?*Erysiphe polygoni* on, in India, symptoms of, 2923.
—, *Fusarium orthoceras* f.sp. *lentis* on, production of toxic metabolites by, 435.
Lentinus edodes, *Pachybasium* and *Trichoderma viride* on, 729.
— *lepideus*, ecology of, 930.
— — on timber, 682, 1332, 3251.
*— *tigrinus* on horse chestnut, 3579.
Lenzites betulina, inhibition of *Trametes sanguinea* by, 2304.
— *saepiaria* and *L. subferruginea* on timber, 681.
— *trabea* on timber, 682, 1992, 3251.
Lepiota, inhibition of tobacco mosaic virus by extracts from, 3204.
Leptodiscus terrestris on *Lotus corniculatus*, 2518.
Leptosphaeria coniothyrium on rose, 549.
— *herpotrichoides* on wheat, 2664.
— *maculans* on cabbage, 1996, 3621.
— — on Cruciferae, 3621.
— *michotii* on sugarcane, 1035a.
— *nodorum* on cereals, 1077, 1817.
— — on wheat, see Wheat.
— *sacchari* on sugarcane, 1035a, 2826.
— *salvinii* on rice, see Rice.
*— *taiwanensis* on sugarcane, 302.
— *tritici* on wheat, 1496, 2130, 2664.
— — — — —, resemblance of 'brown neck' symptoms to, 3087.
**Leptosphaerulina arachidicola* on groundnut, 3642.
— *australis*, ascocarp formation and sporulation of, 1439.
— *briosiana*, effect of temp. on ejection of ascospores of, 3012.
— *crassiasca* on groundnut, 2928.
— *trifolii*, C.M.I. description of, 1035a.
— — on clover, 240.
— —, spotting on forage legumes resembling, 238.
Lettuce (*Lactuca sativa*), *Arabis* mosaic virus on, transmission of, by seed, 712.
— big vein virus, unusual vectors of, 9b.
—, *Botrytis cinerea* on, in England, 2939; control, 713, 1375u, 2343, 3697; epidemiology of, 713; popular review of, 2939.
—, *Bremia lactucae* on, in England, 3299b; **Kenya*, 2a; control, 1375s; physiologic races of, 3299b.
—, dyrene residues in, 394a.
—, *Erwinia carotovora* can infect, 3315.
—, *Fusarium oxysporum* f.sp. *lactucae* on, description and symptoms of, 2580.
— leaf-tip burn, symptoms of, 1361.
—, *Marssonina panattoniana* on, in Austria, 968.
—, methods for selection of healthy seed of, 1745k.
— mosaic virus on lettuce, effect of Al foil between rows on, 1360; of MCPA on, 2938; factors affecting transmission of, 395c, 3390; lyophilization of, 2104; transmission of, by seed, 712; test for, 383; technique for identifying, 384; var. react. to, 1745l.
*—, *Mycosphaerella ligulicola* on, 1154; effect of leaf washings on infection by, 1905.
—, *Olpidium brassicae* on, formation of sporangia in, 3740; isolate differences in, 365; ultrastructure of, 3740.
—, *Phoma* on, hosts of, 2357d.
—, *Sclerotinia* on, control, 967.
—, — *minor* on, control, 2343.
*—, — *sclerotiorum* on, in Rhodesia, 2359a; control, 2343.
— tipburn, laticifer rupture and, 1735; symptoms and types of, 391d.
— virus diseases, epidemiology, symptoms, and transmission of, 2022.
*—, *Xanthomonas vitians* on, in Rhodesia, 3a.
Leucopaxillus amarus, growth and spore germination of, 22.
Leutosan against *Ustilago avenae* on oats, 1511.
Leveillula in U.S.S.R., 1037.
— *taurica*, conidia and conidial germination in, 30.
— —, method for predicting, 1073.
— — on Leguminosae, 3731b.

Lichens, biology of, book on, 406.
Light, effect of, on *Ascochyta chrysanthemi* on chrysanthemum, *A. pisi* and *Mycosphaerella pinodes* on pea, and *Phoma herbarum* var. *medicaginis* on lucerne, 24; on sporulation of *Peronospora tabacina*, 628.
Lignin, degradation of, by soil fungi, 1782.
Ligustrum, see Privet.
Lilac (*Syringa vulgaris*), *Cylindrocladium floridanum* and *C. scoparium* on, in U.S.A., 3461.
— leaf roll, mosaic, and ring spot viruses on lilac, characteristics and world distribution of, 1587.
— white mosaic virus on lilac in Germany, severity of, 1587.
— witches' broom virus on lilac, characteristics and world distribution of, 1587.
Lily (*Lilium*), *Hippeastrum* mosaic virus on, 540.
Lima bean, see *Phaseolus lunatus*.
Limacinia citri in Chile, factors affecting development of, 82.
Lime (*Citrus aurantifolia*), citrus greening virus on, in India, symptoms and transmission of, by vectors, 2167.
—, — stubborn disease virus on, symptoms of, 187.
—, — tristeza virus on, in Cyprus, 3113; Fiji, 2034a; India, 522.
— endoxerosis, control, 1131.
—, *Fusarium solani* f.sp. *aurantifoliae* on, 194.
—, *Haplosporella hesperidica* on, in India, symptoms of, 819.
—, *Phytophthora citrophthora* on, control, 1885.
—, *Sphaeropsis tumefaciens* on, in Jamaica, 2958a.
— stylar-end rot, control, 1131.
— tree, see *Tilia*.
—, effect of, on potato tuber diseases, 1376d.
—, slaked, against *Plasmodiophora brassicae* on cabbage, 2307.
— -sulphur injury to apple, 250.
Limnanthes douglassii, cucumber mosaic virus on, transmission of, by vectors, 3054.
Limonium sinuatum, *Cercospora insulana* on, biology, morphology and symptoms of, 3470.
Lindane against timber blue stain, 3219.
— in combination against timber blue stain, 3219, 3609.
Linochora ligniaria on fruit, 1598.
Linseed (*Linum usitatissimum*), *Fusarium oxysporum* f.sp. *lini*, *Melampsora lini*, and *Mycosphaerella linorum* on, in Argentina, 1578.
Linum usitatissimum, see Flax, Linseed.
Lipaphis erysimi, *Entomophthora coronata* on, factors affecting, 1757.
Liquidambar styraciflua, *Botryosphaeria ribis* on, in U.S.A., 2277.
— — mycorrhiza, effect of methyl bromide on, 2849.
— —, *Pythium sylvaticum* on, in U.S.A., 908.
Liriodendron tulipifera, *Armillarina mellea* on, associated with butt rot, 1976.
— —, *Cylindrocladium scoparium* on, resemblance of *C.* on walnut to, 3305g.
— —, soil fungi in litter of, factors affecting, 1020.
Liro-maneb and lirotan against *Coniella diplodiella* on grapevine, 1935.
Litchi chinensis, *Botryodiplodia theobromae*, *Glomerella cingulata*, and *Pestalotia pauciseta* on, control, 864.
Lirula nervata on *Abies balsamea*, 2562a.
Lobelia, potato virus Y and tobacco etch virus can infect, 1455.
—, *Xanthomonas* on, 3299k.
**Lochnera pusilla*, *Xanthomonas malvacearum* on, 218.
Locusts, *Metarrhizium anisopliae* on, study on, 2977.
Loganberry (*Rubus ursinus* var. *loganobaccus*), *Didymella applanata* and *Elsinoe veneta* on, control, 3161.
— virus, relationships and transmission of, 2355i.
Lolium mosaic virus on *Lolium*, effect of N on, 2584f.
— mottle virus on *Lolium* in Britain, 3474.
— *multiflorum*, *Ascochyta desmazieri* on, in Brazil, 1168a.
— —, barley yellow dwarf virus on, in Denmark, 730b.
— —, *Helminthosporium* and *H. siccans* on, in Germany (E.), 2743.
— —, *Puccinia graminis* on, in Brazil, 1168a.
*— —, *Pythium myriotylum* on, susceptibility to, 2434.
— —, *Septoria tritici* var. *lolicola* on, in Brazil, 1168a.
— *perenne*, barley yellow dwarf virus on, 3300c.
— —, *Claviceps purpurea* on, 1104.
— —, *Gloeotinia temulenta* on, control, 2509.
— —, *Helminthosporium* and *H. siccans* on, in Germany (E.), 2743.
Lonacol against *Peronospora destructor* on onion, 709.
Longidorus elongatus transmitting *Arabis* mosaic virus, 69; raspberry ring spot virus, 1059, 2218; tomato black ring virus, 1059.
— *macrosoma* transmitting carnation ring spot virus, 221.
Lophiostomaceae on fruit, 1598.
**Lophodermium darkeri* on spruce, 643b.
— *macrosporum* on spruce, 357.
— *nitens* on pine, 2864.
— *picea* on spruce, 357.
— *pinastri*, *Davisomycella fragilis* on pine previously confused with, 347.
— —, effect of pine needle extracts on growth of, 9780.
— — on forest trees, 919a.
— — on pine, see Pine.
**Lophophacidium hyperboreum* on spruce, 2562e.
Loquat (*Eriobotrya japonica*), *Sclerotium rolfsii* on, in India, symptoms of, 3169.
—, *Spilocaea eriobotryae* on, in U.S.S.R., 268.
Lotus conjugatus and *L. corniculatus*, immunity from bean yellow mosaic virus, 1460.
— *corniculatus* crown and root rot, *Mycoleptodiscus sphaericus* and *M. terrestris* associated with, 1597.
— —, *Leptodiscus terrestris* on, effect of different glasshouse containers on, 2518.
— —, *Ramularia deusta* on, in Brazil, 1168b.
— — spotting, resemblance of, to *Leptosphaerulina trifolii*, 238.
— *edulis*, potato virus Y can infect, 1455.
Lucerne (*Medicago sativa*), *Alternaria tenuis* on seed of, in Poland and Yugoslavia, 1176.
—, bean yellow mosaic virus on, in Bulgaria, resistance to, 1460.

[Lucerne], *Cercospora medicaginis* on, sources of inoculum for, 3143.
—, *Corynebacterium insidiosum* on, in *Australia, survey of, 3144; Victoria, 2032g; non-occurrence of, in N.S.W., 2032g.
— diseases, bulletin on and symptoms of, 3485.
—, effect of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
—, *Fusarium oxysporum* on seed of, 1176.
— mosaic virus in Jordan, Lebanon, and Syria, 1045.
— — —, effect of two components on infectivity of, 1913.
— — —, lyophilization of, 2104.
— — — on bean, 3393.
— — — on celery, 3611.
— — — on clover, 239, 2514.
— — — on eggplant, 2352.
— — — on lucerne in Czechoslovakia, incidence of, 2514.
— — — on *Malva parviflora*, 3394.
— — +bean yellow mosaic viruses on bean and pea, 775.
— — —, see also Alfalfa mosaic virus.
—, *Phoma herbarum* var. *medicaginis* on, in Rumania, 1914; effect of light and UV light on, 24.
—, — — — — on seed of, in Poland and Yugoslavia, 1176.
*—, *Phytophthora megasperma* on, in U.S.A., 243.
—, *Pleospora herbarum* on, in Yugoslavia, 1594.
—, *Pseudopeziza medicaginis* on, epidemiology of, 557; sexual development in, 1440.
— snow mould in Canada, 1593.
— spotting, effect of light and temp. on and resemblance of, to *Leptosphaerulina trifolii*, 238.
—, *Verticillium* on, susceptibility to, 478.
—, — *alboatrum* on, in Denmark, 730b; breeding against, 244; formation of endospores in, 2625; genetics of, 556.
— meal against *Phytophthora cinnamomi* on avocado pear, 863.
**Lucilia cuprina*, *Entomophthora* on, in India, 413.
Luffa acutangula, tobacco ring spot virus and watermelon mosaic virus on, similarity of symptoms, 2645.
Lupin (*Lupinus*), alfalfa mosaic virus on, in Great Britain, strs. and transmission of, 2503.
—, bean yellow mosaic virus on, in Lithuania, 2318; detection of, 245; virulence of, 2318, 3483.
—, cucumber mosaic virus on, in Great Britain, 2503.
—, *Cylindrocladium scoparium* on, 1930.
—, *Erwinia carotovora* on, susceptibility to, 846.
—, *Erysiphe polygoni* on, 2003.
—, *Fusarium* on, in Lithuania, 2190.
—, — *acuminatum*, *F. avenaceum* var. *herbarum*, and *F. javanicum* on, in Lithuania, 2319.
—, — *oxysporum* on, in Lithuania, 2319; *Heterodera gottingiana* associated with, 694c.
—, — — f.sp. *lupini* on, in Hungary, effect of *Rhizobium lupini* in soil on symptoms of, 1743c.
—, — *solani* var. *coeruleum* on, in Lithuania, 2319.
—, *Glomerella cingulata* on, effect of temp. on growth of, 1596.
[Lupin] mottle virus on lupin in Great Britain, transmission of, 2503.
—, pea mosaic virus stem browning str. can infect, 2904.
—, *Pseudomonas lupini* and *P. xanthochlora* on, susceptibility to, 846.
—, *Uromyces lupinicola* on, in U.S.S.R., 2732.
— virus disease in Hungary, resemblance of, to pea mosaic virus, 1743b.
— — diseases in Great Britain, 2503.
—, watermelon mosaic virus on, aggregated particles of, 3653.
Lychnis mosaic virus on *Lychnis*, differentiation of, from tobacco mosaic virus, 3471.
Lycopersicon, *Corynebacterium michiganense* on, react. to, 1972.
— *esculentum*, see Tomato.
— *peruvianum*, tobacco mosaic virus on, 3567.
— *pimpinellifolium*, *Corynebacterium michiganense* on, evaluation of resistance to, 2267.
Lygus campestris transmitting fungi, 983.
— *rugulipennis* transmitting turnip mosaic virus, 983.

M45 against *Gibberella fujikuroi* on *Dracaena* and *Pleomela*, 1584; *Peronospora tabacina*, 888.
— in combination against *Xanthomonas citri* on citrus, 1130.
M2452 against *Sphaerotheca pannosa* on rose, 3459h.
—, toxicity of, to rose, 3459h.
**Macadamia*, *Armillaria mellea* on, in Rhodesia, 2588a.
Macromycetes in U.S.S.R., economic importance and review of, 3035.
Macrophoma camarana on rose, 549.
— *georgica* on *Laurus nobilis*, 2501.
— *fraxini* on ash, 325.
— *sabinea* on timber, 2285.
Macrophomina phaseoli associated with *Neocosmospora vasinfecta* on cowpea, 83.
— —, effect of growth regulators, trace elements, and vitamins on growth of, 2061.
*— —, hosts of, 2436.
— —, inhibition of, by *Trichoderma viride*, 2613.
— —, interactions of, with soil fungi, 2613.
— — on *Abies grandis*, 355.
— — on bean, 1381k, 1747a.
— — on *Carthamus*, 1939.
— — on *Colocasia esculenta*, 2953.
— — on cotton, 1573.
— — on groundnut, see Groundnut.
— — on guava, 3168, 3514.
— — on maize, 1527.
*— — on orange, 196.
— — on pine, 355.
*— — on sorghum, 2030.
— — on soybean, 1939.
— — on sunflower, 82, 978j, 1222.
Macropsis trimaculata transmitting peach yellows virus, 852.
Macrosiphum avenae transmitting barley yellow dwarf virus, 394e, 1078, 3090.
— *euphorbiae* transmitting pea enation mosaic virus, 2577.
— *miscanthi* transmitting barley yellow dwarf virus, 2659.
— *pisi*, *Entomophthora aphidis* and *E. thaxteriana* on, 3683.

Macrosteles fascifrons transmitting aster yellows virus, 473; recovery from, 1797.
— *laevis* transmitting *Poa annua* virus, 2510.
**Madhuca indica*, *Cylindrocladium scoparium* on, hosts and symptoms of, 1930.
Magnesium deficiency in oil palm, 596.
—, effect of, on spore germination of *Glomerella cingulata*, 433.
— excess in pea, causing Ca deficiency, 1g.
— nutrition of *Corynebacterium sepedonicum*, 4b.
— sulphate as source of nutrition for *Schizophyllum commune*, 930.
Maize (*Zea mays*), *Aspergillus flavus* on, 3436; factors affecting, 1467, 2476.
—, — *ochraceus* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Bromus* mosaic virus on, 1167.
—, *Cephalosporium* on, factors affecting, 3095b; transmission of, by seed, 3095a.
—, — *acremonium* on, effect of mercuric chloride on growth of, 2476.
—, *Chaetomium globosum* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Claviceps gigantea* on, in Mexico, 3306.
—, *Cochliobolus carbonum* on, in Kenya, 2358d; W. Cameroon, 3094; effect of sterols on sexual differentiation in, 510; isolation of toxins from, 803; relationship between β-glucosides and infection by, 1110.
—, — *heterostrophus* on, in Ecuador, 2698.
—, — *sativus* in rhizosphere of, effect of antagonistic micro-organisms on, 507.
—, *Colletotrichum graminicola* on, appressoria in, 3744; not infecting, 3099.
—, *Diplodia* on, in Ecuador, 2698; Rhodesia, 2588b.
*—, — *macrospora* on, in India, 156.
—, — *maydis* on, apparatus for inoculating, 3435; effect of mercuric chloride on growth of, 2476.
— diseases in India, 1113d; S. Africa, 802; U.S.A., 1105; W. Cameroon, 3094; biochemical factors involved in resistance to, 1374b; control, 802, 1105; var. react. to, 802.
— dwarf mosaic virus on maize in U.S.A., 2032e, 2144, 2695, 2696; effect of, on yield, 3093; on chloroplasts, photosynthesis, and respiration, 2145; factors affecting, 2695; hosts of, 2144, 2695; introduction of resistance to, 2697; strs. of, 2696; technique for inoculating, 1513a, b; transmission of, by vectors, 147; var. react. to, 3093.
— — — — — on sorghum and *S. halepense*, 2145b.
— — — — — on sugarcane, 300.
— — — — — strs. A and B on maize in U.S.A., 3431; genetics of resistance to, 2590c.
— — virus, conference papers on, 3306.
—, *Epicoccum* on, effect of, on *Trichometasphaeria turcica* on maize, 1524.
—, *Erwinia* on, non-production of urease by, 411.
—, — *stewartii* on, review of, 1529; revised edition of U.S.D.A. Fmrs' Bull. on, 3437.
—, *Fusarium* on, in Austria, 2030; Ecuador, 2698; Hungary, 1743n; control, 3096; relationship between incidence of and reduced germination in, 1112; technique for inoculating, 1526.
—, — *avenaceum* on, in Germany, 1111, 1861; effect of crop rotation on, 1861.
—, — *culmorum* on, in Germany, 1111, 1861; effect of crop rotation on, 1861; relationship between β-glucosides and infection by, 1110.
[Maize, *Fusarium*] *oxysporum* on, in Germany, transmission of, by seed, 1111.
—, — *poae* on, in Germany, 1111; factors affecting, 1112.
—, — *roseum* on, in France, damage caused by, 99.
—, — *scirpi* on, in Germany, 1111.
—, *Gibberella fujikuroi* on, in C. America, 2960b; Germany, 1111; Rumania, 1377d; U.A.R., 1525b; effect of mercuric chloride on, 2476; factors affecting, 2960b, 3095b; relationship between cellulase activity and, 157; β-glucosides and, 1110; study on, 1111; symptoms of, 1525b, 2960b; transmission of, by seed, 1111, 3095a.
—, — *zeae* on, 3436; in Rumania, 1377d; U.A.R., 1525a, *b; effect of mercuric chloride on, 2476; factors affecting, 1525a; relationship between β-glucosides and, 1110.
—, *Gonatobotrys zeae* on, 3305b.
— growth, effect of antibiotics on, 2045; of gnotobiotic conditions on, 88.
—, *Helminthosporium* on, 3437.
*—, — *pedicillatum* on, in India, 2704.
—, — *rostratum* on, in India, 1113g.
— kernel red streak disease, *Aceria tulipae* causing, 151.
—, *Khuskia oryzae* on, in U.A.R., 1525a, *b; effect of mercuric chloride on, 2476; factors affecting, 1525a.
—, *Macrophomina phaseoli* on, in U.S.S.R., 1527.
—, microflora of roots of, in relation to root rot resistance, 161.
— mosaic virus on maize in India, 148; Yugoslavia, 149; control, 149; effect of, on growth and yield, 1514; electron microscopy of, 504; str. of sugarcane mosaic virus, 148; transmission of, by vectors, 148, 149, 1107; var. react. to, 1514.
— — — on sorghum, 1113f.
— — — on *Sorghum halepense*, 149.
— necrotic leaf spot, benzimidazole ineffective against, 805.
*—, *Nigrospora sphaerica* on, in Kenya, 2358d.
— pellucid spot virus on maize in W. Cameroon, 3094.
—, *Penicillium* on, 1112; effect of, on *Trichometasphaeria turcica* on maize, 1524; relationship between β-glucosides and, 1110.
*—, *Penicillium cyclopium* on, in Kenya, 2358d; effect of mercuric chloride on, 2476.
—, — *frequentans*, *P. funiculosum*, *P. herquei* and *P. multicolor* on, effect of mercuric chloride on, 2476.
—, — *oxalicum* on, 3436; in U.A.R., factors affecting, 1525a; symptoms of, 1525b.
—, — *rugulosum* and *P. variabile* on, effect of mercuric chloride on, 2476.
—, *Phaeosphaeria maydis* on, description of, 1113b.
—, *Phyllachora maydis* on, in C. America, symptoms of, 2960a.
—, *Physoderma maydis* on, in W. Cameroon, 3094.
—, *Pseudomonas alboprecipitans* on, 3437.
—, — *andropogonis*, on 1171, 3437.
—, — *lapsa* on, 1113c; in India, 162; production of urease by, 411.
—, — *rubrilineans* on, in India, 804.

[Maize, *Pseudomonas*] *syringae* on, in Yugoslavia, hosts and symptoms of, 1530.
—, *Puccinia graminis* on, resistance to, 1517.
—, — *polysora* on, in E. Africa, 1379a; Kenya, 505; Madagascar, 3065; W. Cameroon, 3094; biological control of, 152b; genetics of, 152a, 505; interaction of host and parasite, 152a; resistance to E. African races of, 1379a; var. react. to, 505.
—, — *sorghi* on, in Ecuador, 2698; U.S.S.R., 1815; W. Cameroon, 3094; adaptation of, to heat, 1771; biological control of, 152b; genetics of, 152a, 1518, 2699; interaction of host and parasite, 152a; physiologic specialization in, 153; survival of, in storage, 3381.
—, — *zeae* on, interaction of host and parasite, 152a.
—, *Pyrenochaeta terrestris* on, 161.
—, *Pythium* on, in Austria, 2030.
—, — *ultimum* on, effect of mercuric chloride on, 2476.
— rough dwarf virus on maize, electron microscopy of, 2472.
—, *Sclerospora* on, transmission of, by seed, 1109.
—, — *rayssiae* var. *zeae* on, control, 2705.
—, — *sacchari* on, control, 2705; transmission of, by seed, 1109.
—, sorghum red stripe virus on, in Rumania, 2146; *U.S.S.R., 3403; str. of sugarcane mosaic, 2146.
—, *Sphacelotheca reiliana* on, in W. Cameroon, 3094; control, 159, 3094, 3434; effect of plastic foil on incidence of, 158; factors affecting, 1108, 3433; infection by, 3433; var. react. to, 1108.
— stalk rot, effect of nutrition on, 2152; review of, 1528.
— streak virus on maize in E. Africa, 1379a; genetics of, 1515; resistance to, 1379a; transmission of mechanically, 2587a.
— stunt virus on maize, 3306; U.S.A., 2144; effect of, on yield, 1106; transmission of, by vectors, 3432.
— — +*Sorghum halepense* mosaic viruses on maize, 1106.
—, sugarcane mosaic virus, Johnson grass str., + maize stunt viruses on, 1106.
—, *Trichometasphaeria turcica* on, in Ecuador, 2698; Rumania, 397i; W. Cameroon, 3094; biology of, 397i; control, 397i, 1113a; distribution of, 397i; effect of leaf microflora on epidemiology of, 1524; of soil fertility on, 2147; of sowing density on, 509; of, on, 1522; genetics of, 2702; inhibition of, by aratan and ceresan wet, 508; overwintering of, 160; phytoalexin inhibiting germination of, 2703; reaction of, to inoculation, 2148; relationship between β-glucosides and, 1110; between susceptibility to *Ostrinia nubilalis* and, 1860; var. react. to, 1523.
—, *Ustilago maydis* on, in Austria, 1521; Papua and New Guinea, 400, 2700; *Rhodesia, 3a; control, 1520, 2475, 3434; effect of crop rotation on, 1520; of mutagenic factors on, 2474; eradication of, 400; factors affecting, 1520; gall morphology of, 2473, 2701; IAA oxidase activity in resistant and susceptible cvs., 154; non-eradication of, 2700; pathological changes in epidermis of, 1519; primary symptom of, 2151; resistance to, 397e; assessment of, 2150; selection for, 155; review of, 506; technique for inoculating, 2149.
[Maize] virus disease in N.S.W., transmission of, 2032e; U.S.A., hosts of, 150.
— — on *Sorghum halepense*, 2032e.
—, wheat stripe mosaic virus on, in U.S.S.R., 3403.
Makrolin, effect of, on fungi, versus copper and zerlate, 2983.
Malathion against vectors of *Capnodium* and *Meliola* on coffee, 1562.
Malcolmea maritima, cauliflower mosaic virus on, 2308.
Malipur against *Claviceps purpurea* on *Poa pratensis*, 1170; *Plasmopara viticola*, 2791.
Malpighia punicifolia, *Cercospora bunchosiae* on, in Hawaii and U.S.A., 2534.
Malus, apple chlorotic leaf spot+latent viruses on, effect of, on growth of, 395k.
— *platycarpa*, apple scaly bark on, ?identity of viruses causing, 2519.
— — as indicator for apple mosaic and apple witches' broom viruses, 2194; pear viruses, 2523.
— *pumila*, see Apple.
Malva parviflora, *Abutilon* mosaic virus and *A. spurium* and *A. thompsonii* viruses on, 1056.
— —, effect of extracts from, on tobacco mosaic virus, 774.
— —, lucerne mosaic virus on, identification of, 3394.
*— —, *Macrophomina phaseoli* on, in U.S.A., 2436.
— — witches' broom, *Abutilon thompsonii* virus causing, 1056.
Malvaceae infectious chlorosis, viruses causing, 1056.
Mancozeb against *Botrytis fabae* on broad bean, 419; *Leptosphaeria nodorum* on wheat, 98; *Peronospora destructor* on onion, 18, 1357; *P. tabacina*, 311, 624, 625; *Phytophthora infestans* on tomato, 18; *Pyrenophora graminea* on barley, 98; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Ustilago avenae* on oats, 98.
— versus maneb, 98.
— in combination against *Ascochyta* and *Puccinia horiana* on *Chrysanthemum*, 3131.
—, see also Dithane M45.
Mandarin orange, see Orange.
Maneb against *Alternaria brassicicola* on cabbage, 3299h; *A. solani* on potato, 1381j; *Botrytis fabae* on broad bean, 419; *Cochliobolus sativus* on barley, 1849; *Corticium solani* on tomato, 318; *Cylindrosporium* on *Rhus trilobata* and *Shepherdia argentea*, 335; *Didymella lycopersici*, 318; *Erysiphe graminis* on barley, 1849; *Helminthosporium heveae*, 1256; *Leptosphaeria nodorum* on wheat, 98; *Marssonina brunnea* on poplar, 2853; *Mycosphaerella musicola*, 2220; *Peronospora destructor* on onion, 18, 1357, 2929; *P. farinosa* on beet, 2584r; *P. parasitica* on cabbage, 2896; *P. tabacina*, 311, 624, 625, 888, 2257; *Phytophthora infestans* on potato, 1381j; on tomato, 18; *Plasmopara viticola*, 2791; *Polystigma rubrum* on plum, 1200; *Pseudoperonospora humuli*, 2228; *Puccinia graminis* on oats, 2441; *P. hordei* on barley, 1849; *P. menthae* on peppermint, 1220, 3178; *Pyrenophora graminea* on barley, 98; *P. teres* on barley, 1849; *Ramularia beticola* on beet,

2584r; *Rhynchosporium secalis* on barley, 1849; *Septoria lycopersici*, 1968; *Streptomyces scabies* on potato, 1377g; *Uromyces dianthi*, 397f; *Ustilago avenae* on oats, 98; *Xanthomonas phaseoli* on bean, 1377h; as soil disinfectant, 3178.
[Maneb], effect of, on *Leptosphaeria nodorum* and *L. tritici* on wheat, 2130; on *Phytophthora infestans* on potato, 3185.
— ineffective against *Puccinia coronata*, 2469.
— injury to tobacco, 888.
—, methods for determining moisture content of, 3334.
— versus antracol, 2220; mancozeb, 98; zineb, 2469.
— in combination against *Cochliobolus sativus* and *Erysiphe graminis* on barley, 1849; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Phytophthora infestans* on potato, 3e, 3185; *Puccinia allii* on chives, 3668c; *P. coronata*, 2469; *P. hordei*, *Pyrenophora teres*, and *Rhynchosporium secalis* on barley, 1849; *Septoria apiicola*, 2023; as soil disinfectant, 3093.
— — —, effect of, on maize dwarf mosaic virus on maize, 3093; on yield of *Mycosphaerella arachidis*-infected groundnut, 3d.
— 80 against *Phytophthora infestans* on tomato, 2837.
Manganese deficiency associated with citrus decline, 199.
— — in sugarcane, 3200.
—, effect of, on Barakovo black spot on tobacco, 1673; on *Helminthosporium*, 2063; on hop leaf roll virus on hop, 277; on *Streptomyces scabies*, 3664a; on *Tilletia caries* on wheat, 2127.
— nutrition of *Corynebacterium sepedonicum*, 4b.
— toxicity in celery, 711.
— sulphate against fungi on cucumber, 2581.
— —, effect of, on *Fusarium oxysporum* f.sp. *lycopersici*, 319.
— superphosphate, effect of, on rhizosphere microflora in relation to *Verticillium* on cotton, 213.
Mangifera indica, see Mango.
Mango (*Mangifera indica*), *Diplodia natalensis* on, in India, 269; control, 269, 3342.
—, *Glomerella cingulata* on, effect of trace elements on, 2062; of vitamins on, 432.
Manihot utilissima, see Cassava.
Manila Hemp, see *Musa textilis*.
Manzate against *Alternaria solani* on potato, 3186; *Cercospora nicotianae* on tobacco, 2831.
Maple, see *Acer*.
Marasmius palmivorus on oil palm, 596, 871, 872.
— *perniciosus* on cacao, 781b.
*— *sacchari* on sugarcane, 2359a.
Marcin against *Phytophthora infestans* on potato, 1396; on tomato, 1677.
Market garden crops, diseases of, 3611; in India, 1465; control, 1745e; handbook on, 950.
Marrow, see Vegetable Marrow.
Marssonina brunnea on poplar, 2853, 3219, 3585.
— *panattoniana* on lettuce, 968.
— *populi* on poplar, 2031g.
— *populi-nigrae* on poplar, 3219.
— *salicicola* on *Salix*, 336, 3219.
**Massariella viticola* on grapevine, 86.
**Mastigosporium album* on *Alopecurus pratensis*, 2586a.
— *rubricosum* on *Dactylis glomerata*, 2743.
Mastisan, effect of, on fungi on banana, 2782.
'Mastpilz A' on timber, 932.
Matthiola, *Fusarium solani* on, control, 3126.
—, *Peronospora parasitica* on, in N.S.W., 2032d.
*— *incana*, *Peronospora parasitica* on, in N.S.W., 2737.
Maurandia, *Cercospora antirrhini* on, survival of, 1149.
Maxicrop against *Botrytis cinerea* on strawberry and *Erysiphe polygoni* on turnip, 1783.
—, effect of, on damping-off of tomato, 1783.
MBR–CP and MBR–CP–PBR as soil disinfectants, 355.
MC 1053 against powdery mildews, 20.
—, effect of, on *Erysiphe cichoracearum* on cucumber, 972.
MC 1072 against powdery mildews, 20.
MCO against *Coniella diplodiella* on grapevine, 1935.
MCPA, effect of, on lettuce mosaic virus on lettuce, 2938.
M-cresol against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Meconopsis, *Peronospora arborescens* on, in W. Scotland, 1746d.
Medicago, *Cercospora zebrina* and *Pseudopeziza medicaginis* on, in Brazil, 1168b.
— *lupulina*, clover enation (?)virus on, 2515.
— *sativa*, see Lucerne.
Megoura viciae transmitting Leguminosae viruses, 2318; pea enation mosaic virus, 3628.
Melampsora allii-populina on poplar, 912.
**Melampsora euphorbiae* on *Euphorbia fulgens*, 730c.
— *larici-populina* on poplar, 660, 912, 1689.
— *lini* on flax, see Flax.
— — on linseed, 1578.
— *medusae* on poplar, 1310.
— — on *Pseudotsuga menziesii*, 643e.
— *populnea* on pine, 3231.
— — on poplar, 333.
— *ricini* on *Ricinus communis*, 3731a.
Melanconiopsis elzoi on timber, 1990.
Melanomma coniothyrium on *Salix*, 336.
Melanospora parasitica on *Beauveria bassiana*, 2976.
Melilotus, bean yellow mosaic virus on, in Bulgaria, 1460.
—, potato virus Y and tobacco etch virus can infect, 1455.
— *italicus*, potato virus A can infect, 1455.
Melinis minutiflora stunting ?virus in Kenya, transmission of, by insects, 1379c.
Meloidogyne arenaria, associated with *Aspergillus flavus* and *A. niger* on groundnut, 376.
— *hapla* associated with *Agrobacterium tumefaciens* on raspberry, 2777.
— — + *Fusarium oxysporum* on *Chrysanthemum*, 225.
— *incognita* associated with *Fusarium oxysporum* f.sp. *lycopersici*, 3216.
— —, effect of, on incidence of *Fusarium oxysporum* f.sp. *vasinfectum* on cotton, 822; on *Pseudomonas solanacearum* on tomato, 3577.
— — transmitting *Fusarium oxysporum* f.sp. *lycopersici*, 1676.

[*Meloidogyne*] *javanica* associated with *Fusarium* on flax and *Hibiscus cannabinus*, 3457.
Melolontha melolontha, microbiological control of, by *Beauveria tenella*, 737d.
Melon (*Cucumis melo*), cucumber mosaic virus on, 1745i; control, 1745j.
—, *Fusarium* on, cross protection between strs. of, 974.
—, — *equiseti* on, in Israel, pathogenicity of, 1466.
—, — *oxysporum* f.sp. *melonis* on, 3611; in Belgium, 1374e; Canada, 978q; control, 716, 978q, 2349; cross-protection by, against other strs. of, 974; heterogeneity of, 1374e; technique for producing different spore forms of, 1374f.
—, *Mycosphaerella melonis* on, in U.S.A., genetics of resistance to, 1738.
—, *Pseudoperonospora cubensis* on, in S. Africa, 969.
—, *Pyrenochaeta* on, 3611; var. react. to, 2947.
—, *Pythium ultimum* on, in Canada, effect of soil temp. on, 978p.
— shot hole virus on Cucurbitaceae, 3611.
— — — — on melon, properties and transmission of, 3611.
—, *Verticillium* on, susceptibility to, 478.
—, ?watermelon mosaic virus type 2 on, in U.S.A., symptoms and transmission of, by vectors, 1363.
Melprex against *Blumeriella jaapii* on cherry, 3302c; *Cylindrosporium maculans* on mulberry, 1630; *Marssonina brunnea* on poplar, 2853.
Mema A as 'short wet' seed treatment for cotton, 828.
MEMC for disinfecting potato tubers, 1376c.
Memnoniella on cellulose and paper, 2988.
Menazon against vectors of beet yellows virus and as seed treatment for beet, 3624.
Mentha enation virus serologically related to stolbur virus, 3526.
— *arvensis*, strawberry latent ring spot virus on, transmission of, by seed, 3508.
— *piperita*, see Peppermint.
*— *spicata*, *Puccinia menthae* on, in N.S.W., 2032c.
Mercuran against grapevine canker, 2540; as seed treatment for sunflower, 2231; for wheat, 120.
Mercuric chloride against *Helminthosporium allii* on garlic, 1377j; *Leptosphaeria salvinii* on rice, 811; *Macrophomina phaseoli* on *Colocasia esculenta*, 2953; mycoflora on groundnut, 3645; *Plasmodiophora brassicae* on cabbage, 2307; *Xanthomonas phaseoli* on bean, 1377h; as seed treatment for cabbage, 1339; *Capsicum*, 720; cotton, 2176; *Setaria italica*, 2154; spinach, 3261; as soil treatment against *Sclerotium cepivorum* on onion, 2933a.
— —, effect of, on *Cochliobolus miyabeanus*, 1545; on growth of fungi on maize, 2476.
Mercuric-mercurous chloride mixture, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
— nitrate, effect of, on *Cochliobolus miyabeanus*, 1545.
Mercurite as seed treatment for pea, 2905.
Mercurous chloride against *Plasmodiophora brassicae* on cabbage, 2307.
Mercury against *Fusarium oxysporum* f.sp. *tulipae* on tulip, 844.
[Mercury] as seed treatment for barley, 2442; cereals, 1819, 3406; potato, 3664b; wheat, 1092, 2442.
— injury to tulip, 844.
—, sensitivity of *Rosellinia thelena* on oak to, 2850.
— compounds, organic, against *Corticium solani* and *Phoma solanicola* on potato, 1376b; *Puccinia carthami* on safflower, 3176; *Pythium ultimum* on parsley, 714; *Venturia inaequalis*, 397k; as seed treatment for cotton, 2176; oats, 1858.
— —, —, effect of residues of, on potato seed, 1655.
— —, —, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
— —, —, injury to oil palm, 3181.
Merfusan against *Corticium fuciforme* on turf, 1592.
Merulius lacrymans, see *Serpula lacrimans*.
**Mesembryanthemum criniflorum*, *Peronospora mesembryanthemi* on, in Great Britain, 1063a.
Metal, fungi on, evaluation of fungicides against, 997.
Metarrhizium anisopliae, effect of, on mosquito larvae, 737e.
— — on locusts, 2977.
Meta-sodium as soil disinfectant, 390g.
Metasol in combination as seed treatment for groundnut, 2019.
Metasystox against beet yellows virus on beet, 2901.
— R against beet yellows virus on beet, 1706.
Metham-sodium as soil disinfectant, 279.
Methiram against *Peronospora destructor* on onion, 2929.
6-methoxy-benzoxazolinone, inhibition of *Ostrinia nubilalis* and *Trichometasphaeria turcica* by, 1860.
2-methoxy ethyl mercury acetate, see Mema A.
Methyl-arsine, effect of, on *Aspergillus flavus* and *A. niger* on groundnut, 2016.
— bromide against damping-off of tobacco, 1381e; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 2356i; *Plasmodiophora brassicae* on cabbage and *Pyrenochaeta terrestris* on tomato, 394j; as soil disinfectant, 17, 640, 897, 1026a, 1675, 1886, 1962, 2343, 2356e, f, 2849, 3459c, i, 3594.
— — as timber preservative, 1334.
— —, effect of, on *Fusarium oxysporum* f.sp. *lycopersici* and *Verticillium alboatrum* on tomato, 1970.
— — in combination as soil disinfectant, 3074.
— hydrazone ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
— parathion against vectors of *Capnodium* and *Meliola* on coffee, 1562.
— dithiocarbamate, effect of, on *Pythium ultimum* on pea, 978c.
a-methylene-butyrolactone, isolation of, from tulip bulbs, 231.
Methyl ethoxy mercuric chloride, see MEMC.
— isothiocyanate a constituent of trapex, 17.
— — compound as soil disinfectant, 1026a.
N-methylmercuric-di (*p*-toluensulphon)-imide against *Tilletia foetida* on wheat, 1839.
— mercury dicyandiamide and 8-hydroxyquinolinate against *Fusicoccum amygdali* on peach, 1202.

2-methyl-thio-3-methyl-4-thio-6-azauracil, fungistatic activity of, 3690.
Metiram against *Peronospora tabacina*, 625.
Mezineb against *Alternaria brassicicola* on cabbage, 3299h.
Microbiology, agricultural, treatise on, 2972.
—, Annual Review of, Vol. 21, 9.
—, fluorescing antibodies, use of in, monograph on, 1047.
— of fabricated materials, book on, 2593.
—, of food, manual on, 2973.
—, industrial progress in, book on, 423.
—, techniques in, book on, 990.
Microfungi, ecology and review of, 1004.
— in soil, 37.
— on *Heracleum sphondylium* and *Urtica dioica*, 2970a, b.
Micronegeria fagi on *Nothofagus obliqua*, 1981.
Microsphaera alni on pecan, 1686.
— *alphitoides* on oak, 20, 910, 1809.
— *berberidis* on barberry, 1809.
— *penicillata*, C.M.I. description of, 3731b.
Miedzian 15, see copper oxychloride.
Milk, commercial evaporated, against sugarcane chlorotic streak virus, 882b.
Miller fungicide 658 against *Cercospora nicotianae* on tobacco, 2831.
Millets, bacterial diseases of, in India, 1113h.
Miltox against *Plasmopara viticola* on grapevine, 2791.
Mimulus lewisii, *Ramularia lewisii* on, in Canada, 2622.
Mirrol against sugarcane chlorotic streak virus, 882b.
Mitrula sclerotiorum associated with *Sclerotinia trifoliorum* on clover in Poland, 2189.
Molybdenum as seed treatment for cotton, 2488.
—, effect of, on resistance of cotton to *Verticillium*, 212; on *Verticillium* on cotton, 2488.
Momordica charantia, *Fusarium solani* f.sp. *cucurbitarum* on, in India, 3061.
Monilia roreri on cacao, 1469.
Moniliaceae (Mucedinaceae), key to identification of, 3037.
Moniliopsis aderholdii, form of *Corticium solani*, 455.
— — on cucumber, 2945.
Monilochaetes infuscans on sweet potato, 2819.
Monolinuron against *Cercosporella herpotrichoides* on wheat, 2678.
Monomycin, effect of, on *Fomes tremulae*, 2388.
**Monstera deliciosa*, *Botryodiplodia theobromae* on, 545.
Morestan against *Erysiphe cichoracearum* on tobacco, 1278; *Oidium* on tomato, 2836; *Sphaerotheca fuliginea* on cucumber, 2347.
—, methods for sensitive determination of residues of, in plants, 2384.
Morocide against *Sphaerotheca fuliginea* on cucumber, 2347.
Mortierella vinacea in soil, 1318.
Morus, see Mulberry.
Mosquito, effect of *Metarrhizium anisopliae* and its toxins on larvae of, 737e.
Mottled rose mosaic virus, see rose mottled mosaic virus.
Mucor against *Numicia viridis* on sugarcane, 1259b.
— *hiemalis*, effect of oxygen deficiency on sporulation of, 1173c; of quintozene on, 1173c.
— — in soil, 1781.
[*Mucor hiemalis*] on beet, stored, 2903.
— *plumbeus*, autotropism in spores of, 2051.
— *racemosus* on tobacco, 3565.
— *ramannianus*, inhibition of, by potassium cyanide, 36.
— —, lysis of cell walls of, by *Streptomyces*, 2397.
— — on spruce, 1326.
— *spinosus*, effect of quintozene on, 1173c.
Mucorales in India, list of, 45.
Muehlenbergia hugelii, *Puccinia graminis* and *P. striiformis* on, 2660.
*Mulberry (*Morus*) curly little leaf ?virus disease in U.S.S.R., symptoms of, 1977.
—, *Cylindrosporium maculans* on, in U.S.A., 1630.
— dwarf virus on mulberry in *U.S.S.R., aetiology of, 1685; control, 655, 656; structures in tissues infected by, 657; transmission of, by grafting, 1685.
—, *Oospora virescens* on, antibiotic activity of, 745.
Murex trunculus, inhibitor to TMV from, 1275.
Murphane against *Plasmopara viticola* on grapevine, 2791.
**Murraya exotica*, *Phoma herbarum* on, in India, 546.
Musa, *Deightoniella torulosa* on, C.M.I. description of, 3030.
— *balbisiana* × *M. textilis*, abaca mosaic virus on, reaction to, 220.
— *nana*, see Banana.
— — var. *sapientum*, see Banana.
— *textilis*, abaca mosaic virus on, transmission of, by vectors, 1577.
— —, *Pseudomonas solanacearum* on, in Peru, 1933.
— — × *M. balbisiana*, abaca mosaic virus on, reaction to, 220.
Muscari parviflorum, *Uromyces christensenii* on, in Israel, 137.
Mushroom (*Agaricus*), antibiotic activity of, 2954.
—, bacterial spotting of, control, 3662.
*—, *Chaetomium olivaceum* on, in Rumania, 727.
— cultivation, effect of bacteria on development of, 3298.
— dieback virus in England, disease in Denmark identical with? 977; Netherlands, isolation of, 1f.
*—, *Diplocladium*(?) *majus* on, in N.S.W., 2032i.
— handbook, English edition of American publication, 3310.
—, *Monilia* in compost of, effect of sucrose on growth of, 390h.
—, *Mycogone perniciosa* on, resistance of monospore strs. of, to, 1742; spread of and transmission of, by water, 3661.
*—, *Papulospora byssina* on, in Rumania, 727.
—, *Plicaria fulva* on, perfect state of *Botrytis crystallina*, and resemblance of virus-like particles in, to mushroom virus 1, 1741.
—, *Pseudomonas tolaasii* on, causing mummy disease, 3663; epidemiology of, 728.
—, *Trichoderma* on compost of, effect of sucrose on growth of, 390h.
—, use of bactericides and fungicides in growing, 1375c.
—, *Verticillium malthousei* on, control and effect of, on yield, 1374m.
*— virus disease in Denmark, ?identical with

mushroom dieback in England, *Mycophagapicorna psalliotae* proposed as name for, 977; in Netherlands, technique for isolating particles of, 1740.
[Mushroom virus] diseases, in Europe and N. America, review of, 976; diagnosis of, 1372.
Muskmelon, see Melon.
Mustard, Black (*Brassica nigra*), *Pseudomonas* on, resemblance of to *P. syringae*, 3299k.
*—, Chinese (*Brassica juncea*), *Erysiphe polygoni* on, in India, perithecial state of, 364.
*—, Indian (*Brassica campestris* var. *sarson*), *Erysiphe polygoni* on in India, perithecial state of, 364.
—, —, radish mosaic virus on, effect of plant extracts and microbial growth products on infectivity of, 471.
—, White, see *Sinapis alba*.
Mycena citricolor on *Cephaelis ipecacuanha*, 3175.
Mycerin, effect of, on *Fomes tremulae*, 2388.
Mycoflora in Chile, addenda to index of, 3032.
— in Hungary, review of, 44, 1437, 2619, 3735.
— in Portugal, new records for, 2414.
Mycogone perniciosa, inhibition of, by mushroom, 2954.
— — on mushroom, 1742, 3661.
Mycoleptodiscus, taxonomy of, 1597.
— *sphaericus* and *M. terrestris* associated with crown and root rot of *Lotus corniculatus*, 1597.
Mycologia Index, Vol. 1–58, 1909–1966, cumulative general index, 3678.
Mycological dictionary, Portuguese, 1752.
— literature, taxonomic pattern of, 445.
— records in Poland, list of, 2618.
Mycology, developments in, at Moscow Univ. in the last 50 years, 981.
— of pine litter, 3219b.
—, Review of applied, Plant host-pathogen index to vols. 1–40 (1922–1961), 1384.
—, marine, conference on, 2955.
Mycophagapicorna psalliotae proposed as name for mushroom virus in Denmark, 977.
Mycoplasma ?causing plant diseases, 3672.
Mycorrhiza, French book on, 2990.
— of *Afzelia bella*, 2050.
— of cereals in Poland, 1412.
— of chestnut and *Corylus avellana*, 424.
— of *Eucalyptus*, 1003, 2602.
— of larch, 424.
— of *Liquidambar styraciflua*, 2849.
— of oak, 424, 3710.
— of pecan, 3225.
— of pine, see Pine.
— of shrubs in U.S.S.R., 1001.
— of strawberry, 3669d, 3712.
— of trees, 2271c; in Germany, 1410, 1767; U.S.S.R., 1001.
— of vanilla, 2960f.
— of walnut, 3349.
— of weeds in Poland, 1412.
—, saprophytic fungi isolated from, 424.
—, uptake of P^{32} by vesicular-arbuscular, 3347.
Mycosphaerella in Japan, 2620.
— *arachidicola*, see *M. arachidis*.
— *arachidis* on groundnut, see Groundnut.
— —, technique for inoculating and isolating single spores of, 1729.
*— *areola* on cotton, 1896.
— *berkeleyi* on groundnut, see Groundnut.
— —, technique for inoculating and isolating single spores of, 1729.
[*Mycosphaerella*] *citrullina*, see *M. melonis*.
— *cucumis*, see *M. melonis*.
— *fragariae* on strawberry, 2781.
— *ligulicola*, effect of culture filtrate of *Bacillus cereus* var. *mycoides* on, 3698.
— —, hosts of, 1905.
— —, inhibition of, by actidione, 3698.
— — on *Chrysanthemum*, 1154.
— *linorum* on linseed, 1578.
— *melonis* on cucumber, 1737, *2025, *3292.
— — on melon, 1738.
— — on pumpkin and squash, 2943.
— — on watermelon, 1365.
— *musicola* on banana, see Banana.
— *pinodes* on pea, see Pea.
— —, utilization of pisatin by, 1722.
— *rabiei* on *Cicer arietinum*, 2924.
*— *sapindicola* on *Sapindus*, 3590.
— *sentina* on pear, 1609.
Mylone as compost disinfectant, 714; as soil disinfectant, 694b, 2491, 3594.
Myrica gale, survival of root-nodule endophytes of, in soil, 3348.
Myrobalan, see *Prunus cerasifera* var. *divaricata*.
Myrothecium roridum on coffee, 3446.
*— — on *Hypocyrta glabra*, 227.
*— — on *Sesamum orientale*, 868.
— *verrucaria*, effect of light on growth and sporulation of, 752.
— — on wood pulp, 936.
Myxomycetes in U.S.S.R., 3303.
Myzus persicae, differences in flight capacity of spring and summer forms in relation to virus transmission, 1449.
— —, *Entomophthora coronata* on, factors affecting, 1757.
— — not transmitting plum line pattern virus, 3156.
— —, presence of (?)beet western yellows virus in, 2000.
— — transmitting alfalfa mosaic virus, 3054; bean leaf roll virus, 3630; bean yellow mosaic virus, 3305h; beet mild yellows virus, 1708; beet mosaic virus, 3390; beet western yellows virus, 777, 944; beet yellows virus, 2357a; cucumber mosaic virus, 701a, b, 1739, 1745i, 3054; cucumber mosaic virus strs., 721, 2639, 3389; eggplant mosaic virus, 2951; *Iris* mosaic virus, 2183; Leguminosae virus diseases, 2318; lettuce mosaic virus, 3390; maize mosaic virus, 1107; passion fruit woodiness virus, 270; pea enation mosaic virus, 2577, 3628; pea false leaf roll virus, 1714; pea mosaic virus, 1715; plum pox virus, 2763; potato leaf roll virus, 287; potato virus diseases, 2235; potato viruses M and S, 394e; tomato aspermy virus, 3054; turnip mosaic virus Japanese str., 468; turnip yellows virus, 395g; (?)watermelon mosaic virus type 2, 1363.

Nabam against *Phytophthora capsici* on *Capsicum*, 2949; as compost disinfectant, 714; as soil disinfectant, 3466.
Naemacyclus niveus on forest trees, 919a.
— — on pine needle litter, 349.
Narcissus mosaic virus on *Narcissus*, 840; detection of, 1457.
—, NEPO viruses on, effects, incidence and spread of, 3301j.
—, *Penicillium corymbiferum* on, in Germany, 833.

[*Narcissus*], *Stagonospora curtisii* on, control, 390f.
— virus on *Narcissus*, 840.
— virus diseases, 390m.
— yellow stripe virus on *Narcissus*, rapid detection of and transmission of, by vectors, 840.
**Narenga porphyrocoma*, *Puccinia erianthi* on, 1959.
Nasturtium officinale, see Watercress.
— — × *N. microphyllum*, see Watercress.
National Fungus Collections, Beltsville, Md, U.S.A., account of, 3732.
Natural History of Viruses, book on, 2099.
NC 1584 against *Glomerella cingulata* and *Hemileia vastatrix* on coffee, 1559.
N-dimethyl amino succinamic acid, see Alar.
Nectarine (*Prunus persica*) stem pitting in U.S.A., 3669c; symptoms of, 3669c; var. react. to, 2764; ?virus causing, 3669c.
Nectria cinnabarina on apple, 1181.
— — on currant, 2031e, 3302b.
— — on plum, 1181.
— *galligena*, C.M.I. description of, 1035a.
— — on apple, see Apple.
— — on aspen, 1978.
— — on currant, 3302b.
— — on *Salix*, 1978.
— *pterospermi* on *Pterospermum*, 3014.
— *purtonii*, effect of *Cryptodiaporthe populea* and *Trichothecium roseum* on germ tube growth of, 49.
— *radicicola*, association of, with *Pseudotsuga menziesii* corky root disease, 2881.
— —, C.M.I. description of and hosts of, 1035a.
— — on cyclamen, 3459c.
— — on *Rhododendron*, 1374n.
— — on trees, 2272.
Nemagon as seed treatment for wheat, 3074; soil disinfectant, 261, 1895.
—, effect of, on *Fusarium oxysporum* f.sp. *vasinfectum* on cotton, 1895.
Nematodes, associated with *Macrophomina phaseoli* on groundnut, 376; with *Pseudotsuga menziesii* corky root disease, 2881; with *Pythium* on pecan, 3225; with *Sclerotium rolfsii* on *Eleusine coracana*, 1113q.
—, effect of, on fungi in kernels and shells of groundnut, 3643; on pine mycorrhizal relationship, 2603; on virulence of *Thielaviopsis basicola* and *Verticillium alboatrum* on cotton, 528.
—, fungi on, effect of calcium cyanamide on, 3331; N nutrition of, 35.
—, taxonomic problems of phytoparasitic, 986f.
— transmitting *Ceratocystis fimbriata*, 1470a; ring spot viruses, 2589; tobacco rattle virus, 1059; tobacco ring spot virus, 3208; grapevine infectious degeneration virus, 2589.
Nematospora coryli, C.M.I. description of, 3731b.
— *gossypii* on cotton, 3731b.
Neocosmospora vasinfecta on cowpea, 83.
Neovossia brachypodii and *N. indica*, teliospore morphology of, 3738.
Nephotettix apicalis transmitting rice transitory yellowing virus, 3102.
— *bipunctatus* transmitting experimentally rice yellow dwarf virus, 1114.
— *cincticeps* transmitting rice transitory yellowing virus, 3102.
[*Nephotettix*] *impicticeps* transmitting rice leaf yellowing virus, 169; rice tungro virus, 513, 2155; rice yellow dwarf virus, 2155; rice yellow orange leaf virus, 1115, 2155.
NEPO viruses on *Narcissus* and tulip, 3301j.
**Nerine bowdenii*, *Gibberella fujikuroi* var. *subglutinans* on, in Germany, 1159.
Nerium oleander, see Oleander.
Neurospora crassa, effect of captan on, 3689.
— *sitophila*, primary luminescence of, 460.
Niacide-Z against *Hemileia vastatrix* on coffee, 2722.
Nicandra physaloides as indicator plant for potato virus Y tobacco vein-browning str., 1645.
— —, potato spindle tuber virus on, 3395.
Nichinou phytomycin in combination against *Xanthomonas citri* on citrus, 1130.
Nickel in combination against *Cochliobolus sativus*, *Erysiphe graminis*, *Puccinia hordei*, *Pyrenophora teres*, and *Rhynchosporium secalis* on barley, 1849.
— chloride against *Exobasidium vexans* on tea, 621c; *Uredo* on *Albizia stipulata*, 621a.
— —, effect of, on *Penicillium*, 757.
— sulphate against *Peronospora parasitica* on cabbage, 3616.
— — ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
— — in combination against *Puccinia coronata*, 2469.
Nicosan-3, effect of, on *Erysiphe graminis* and *Puccinia striiformis* on wheat, 1836.
Nicotiana, *Corynebacterium michiganense* on, var. and spec. react. to, 1972.
—, *Peronospora tabacina* on, in Australia, strs. of, 1380a.
— *clevelandii*, *Arabis* mosaic virus on, effect of blue light on infection of, 2641.
— —, bean yellow mosaic virus can infect, 1460.
— —, *Peronospora tabacina* can infect, 1668.
— —, plum pox virus on, transmission of, by sap and vectors, 2763.
— —, tobacco rattle virus on, ultrastructure of, 3301h.
— *debneyi*, as indicator for potato mop top virus, 3301k.
— —, potato spindle tuber virus on, 3395.
— —, *Thielaviopsis basicola* on, resistance to, 978n.
— *exigua* as indicator for potato virus Y, 1744d.
— —, *Peronospora tabacina* on, resistance to, 1965.
— *glauca*, tobacco mosaic virus str. U_2 on, 3385.
— *glutinosa* as indicator plant, 632; for tobacco rattle virus, 2494.
— —, effect of, on virulence of *Peronospora tabacina*, 2260.
— —, *Peronospora tabacina* can infect, 1668.
— —, potato spindle tuber virus on, 3395.
— —, — virus X on, detection of, 78.
— —, tobacco mosaic virus on, 80; effect of actinomycin D and kinetin on susceptibility to, 1050; of DMSO on, 1664; of extracts from *Abutilon striatum* on, 774; inhibition of, by chemical compounds, 1801; by wheat extracts, 464; by yeast RNA, 2422; movement of, in, 1662; necrotic lesion formation in, 1663.
— —, tobacco mosaic virus str. on, 2740.

[*Nicotiana*] *megalosiphon*, plum line pattern virus on, 3156.
— *plumbaginifolia*, *Peronospora tabacina* on, storage of, 2258
— —, *Phytophthora nicotianae* on, in Puerto Rico and U.S.A., 889.
— *rustica*, potato spindle tuber virus on, symptoms of, 3395.
— —, tobacco mosaic virus on, effect of DMSO on, 1664.
— — var. *humulis*, aster yellows virus on, effect of, on transport through plant stems, 473.
— *suaveolens*, effect of, on virulence of *Peronospora tabacina*, 2260.
— *sylvestris* mosaic in India, resembling tomato enation mosaic str. of tobacco mosaic virus, 317.
— —, tobacco mosaic virus on, isolation and quantitative assay of, strs. of, 1272.
— *tabacum*, see Tobacco.
Nigrospora musae on banana, 2032r.
*— *sphaerica* on maize, 2358d.
Nitrafen against *Elsinoe ampelina* on grapevine, 1634; *Mycosphaerella fragariae* on strawberry, 2781; *Plasmodiophora brassicae* on cabbage, 2895; *Rhacodiella vitis* on grapevine, 1934; as soil disinfectant, 612.
Nitraria schoberi, *Cladosporium nitrariae* on, description of, 451.
Nitrogen deficiency in oil palm, 596.
—, effect of, on fungi on wood pulp, 936; of, on *Fusarium solani* f.sp. *phaseoli*, 2909; on *Glomerella cingulata*, 433; on *Lolium* mosaic virus on *Lolium*, 2584f; on maize stalk rot, 2152; on *Ophiobolus graminis* on buried wheat straw, 1098b; on *Peronospora farinosa* on beet 946; on susceptibility of *Capsicum* to *Xanthomonas vesicatoria*, 3318; of peach to *Fusicoccum amygdali*, 1202; to *Xanthomonas pruni*, 3318; of rice to *X. oryzae*, 2712; on toxicity of cycloheximide to *Pythium aphanidermatum*, 426b; on *Trichometasphaeria turcica* on maize, 509; on *Ustilago scitaminea*, 3202; *Verticillium dahliae*, 34.
— dioxide injury to crops in U.S.A., 3701.
N-nitrosoethylurea, effect of, on *Erysiphe graminis* and *Puccinia striiformis* on wheat, 1836.
(?)*Nocardia* against *Fusarium roseum* on carnation, 1582.
Nokmat F–75 against *Elsinoe ampelina* on grapevine, 3171.
Northern cereal mosaic virus on cereals, 3071.
Nothofagus obliqua, *Micronegeria fagi* on, in Chile, stage of *Caeoma sanctae-crucis*, 1981.
Novoimanin against *Corynebacterium fascians* on strawberry, 1929.
Novozir against *Colletotrichum lagenarium* on cucumber, 971.
— N–50 and N–50 in combination against *Lophodermium pinastri* on pine, 2865.
Numicia viridis on sugarcane, 1259b.

Oak (*Quercus*), *Arcangeliella asterosperma* forming mycorrhiza on, in Italy, 3710.
—, *Ceratocystis fagacearum* on, in U.S.A., 329, 909; *C. roboris* on oak in U.S.S.R. different from, 329; epidemics of, 909; longevity of, in roots, 658; review of source of infection and transmission of, 3223; role of auxin in, 3224.
—, — *roboris* on, in U.S.S.R., 329; asexual stages of, 329; different from *C. fagacearum* on oak in U.S.A., 329.
[Oak], *Coniophora puteana* on, biology of, 1702.
—, effect of *Boletus edulis* culture on roots of, 2389.
—, *Fomes fomentarius* and *F. pinicola* on biology of, 1702.
—, *Gnomonia quercina* on, differentiation of, from *G. platani* on *Acer pseudoplatanus*, 911; *Gloeosporium quercinum* imperfect state of, 911.
—, *Graphium roborus* and *Hyalodendron roborus* on, in U.S.S.R., asexual stage of *Ceratocystis roboris*, 329.
—, *Microsphaera alphitoides* on, in Switzerland, 1809; control, 910; evaluation of fungicides against, 20.
—, mycorrhiza of, in Italy, 3710.
*—, *Phyllosticta ilicicola* on, in Portugal, 2414,
—, *Rosellinia thelina* on, comparison of hosts and morphology of with *R. quercina*, 2850.
—, *Typhulochaeta japonica* var. *couchii* on, in U.S.A., 3583.
*—, *Valsa ceratophora* on, in Portugal, 2414.
Oats (*Avena* spp.), *Aspergillus flavus* on, factors affecting infection and germination of, 1467.
—, barley yellow dwarf virus on, in Denmark, 730b; breeding against, 799; effect of aphid nos. and growth stage on tolerance to, 95; hosts of, 730b; movement of, 3090; tolerance to, 3300c; transmission of, by vectors, 3090; var. react. to, 799.
—, *Cercosporella herpotrichoides* on, 2357h.
—, *Cochliobolus victoriae* on, effect of cytokinins on absorption of victorin by, 1857; of specific toxin on host cell membranes, 1854; of victorin on, 1855; factors affecting, 1856.
— diseases in Argentina, 2117; U.S.A., aetiology and importance of, 141; control, 141, 1473; review of, 100; severity of, 2117; symptoms of, 1473.
—, *Erysiphe graminis* on, effect of cationic compounds on, 1103; factors affecting, 1820; intensity of, 3300a.
— foot rot, resistance to, 1094.
—, frost damage, review of, 100.
—, *Fusarium roseum* on, in France, effect of preceding crop on incidence of, 99.
—, — — f.sp. *cerealis* 'Culmorum' on, sporulation of, 3430.
—, *Ophiobolus graminis* on, in France, hosts of, 144; similarity of, to *O. graminis* f.sp. *avenae*, 1098a.
—, *Pseudomonas coronafaciens* on, effect of light on symptomatology of, 145.
*—, — *striafaciens* on, in Japan, characteristics of, 2693.
— pseudorosette virus, study on, 1795.
— — —, see also northern cereal mosaic virus.
—, *Puccinia coronata* on, in Canada, 800, 3075; Kenya, 2358c; S. Africa, 2692; U.S.S.R., 1815; biotypes of, 2470; control, 2441, 2469; physiologic races of, 2692; tolerance to, 1509; var. react. to, 800, 801, 2358c, 2692; virulence of, 800; virulence patterns in isolates of, 2471.
—, — *graminis* on, in Canada, 3075; Israel, 1102; Kenya, 2358c; U.S.A., 3078; control, 2441; effect of, on quality and yield, 3092; formation of appressoria by, 103; genetics of, 1102, 1510; germination of uredospores on epidermis of, 103; new and virulent race of, 1102; nuclear abnormalities in uredinial mycelium of, 142; physiologic races of,

3078, 3404; spec. react. to, 2660; var. react. to, 2358c.
[Oats], *Pyrenophora avenae* on, in Northern Ireland, resistance of, to organomercury, 1858.
—, *Pythium aphanidermatum* on, pathogenicity of, 2442.
*—, — *myriotylum* on, susceptibility to, 2434.
—, — *splendens* on, pathogenicity of, 2442.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
—, *Septoria tritici* f.sp. *avenae* on, in Brazil, 1168a.
—, soil-borne mosaic virus on oats in England, 2584g; Wales, 3665c; similarity of, to N. American str., 2584g.
— sterile dwarf virus on oats, 1475; transmission of, by vectors, 1508.
—, tobacco rattle virus on, in England, 2584g.
—, *Ustilago avenae* on, in Poland, 3406; U.S.A., 503; control, 98, 1480, 1511, 3406; distribution and prevalence of virulence of, 503; incidence of, 3406; method for testing fungicides against, 1853; race population dynamics in, 502; spore dispersal and natural infection in, 143.
—, — *hordei* on, control, 2445.
—, wheat striate mosaic virus (European) on, transmission of, ?by vectors, 3665d.
—, — stunt virus on, incidence of, 1474.
Observationes mycologicae, facsimile of Lipsiae edit., 1032.
Odontia bicolor on *Abies grandis*, 2858.
— — on *A. lasiocarpa*, 2859.
— — on timber, 932.
Officinals, virus diseases of, in Germany, review of work on, 2637.
Ohamycin, effect of, on tobacco mosaic virus and potato virus X on tomato, 2108.
—, toxicity of, to tomato, 2108.
Oidium chrysanthemi on *Chrysanthemum*, 3131.
— *heveae* on *Hevea* rubber, 1258, 3549a.
— *lini* on flax, 537.
— *passerinii* on *Laurus nobilis*, 2501.
Oil against *Cercospora citri-grisea* on citrus, 2960c; cucumber mosaic virus on melon, 1745j; fungi on tomato, 3218; plant virus diseases, 3047.
—, effect of, on transmission of viruses by vectors, 3390.
— in combination against *Cercospora citri-grisea* on citrus, 2960c; *Mycosphaerella musicola* on banana, 2220; *Peronospora tabacina*, 627; *Pseudomonas lachrymans* on cucumber, 996; *Scirrhia pini* on pine, 919c; *Sclerotinia fructicola* on stone fruit trees, 2032q; as timber preservative, 681.
— Palm (*Elaeis guineensis*), *Armillaria mellea* on, characteristics of, 595.
— — blast disease, characteristics of, 595; incidence of, 3180.
— —, book on, 1639.
— —, boron deficiency in, control, 2804.
— — bud rot in Malaysia, 872; characteristics of, 595; ?*Erwinia lathyri* causing, 595.
— —, *Ceratocystis paradoxa* on, in Sabah, 596; incidence of, 3180.
— —, *Cercospora elaeidis* on, characteristics of, 595; incidence of, 3180.
— — Conference, London, 595.
— —, *Corticium solani* on, in Sabah, 596.
— — crown disease in Malaysia, 871, 872.
[Oil Palm], diseases of, 595; in Malaysia, 872, 1638; Sabah, 596; book on, 1638.
— —, *Fomes noxius* on, in Malaysia, 872; Sabah, 596.
— —, *Fusarium* on, incidence of, 3180.
— —, — *oxysporum* on, characteristics of, 595; evaluation of fungicides against, 3532.
— —, — *solani* on, evaluation of fungicides against, 3532.
— —, *Ganoderma* on, in Malaysia, 871, 3531; Sabah, 596; characteristics of, 595; control, 595, 871, 3531; effect of, on mineral nutrition of, 2803.
— —, — *boninense*, *G. chalceum*, *G. miniatocinctum*, *G. tornatum*, *G. xylonides*, and *G. zonatum* on, morphology of, 1945.
— —, — *lucidum* on, in Malaysia, 872.
— —, *Glomerella* on, in Sabah, 596.
— — leaf diseases in Malaysia, review of, 3181.
— —, *Marasmius palmivorus* on, in Malaysia, 871, 872; lack of adequate natural pollination in relation to, 596.
— —, *Melanconium* on, in Sabah, 596.
— — nutritional diseases in Sabah, 596.
— —, *Pythium* and *Rhizoctonia lamellifera* on, in Malaysia, 871.
— — spear rot in Malaysia, 872.
— —, stimulatory effect of on growth of *Fusarium oxysporum*, 2073.
— —, *Ustulina deusta* on, in Malaysia, 872.
— —, virus-like symptoms in Sabah, 596.
Olea europaea, see Olive.
*Oleander (*Nerium oleander*), *Pseudomonas tonelliana* on, in Germany, 1588.
Olive (*Olea europaea*), *Cycloconium oleaginum* on, in France, 1745s; biology of, 1745r; control, 1745r, s, t, 2788; effect of, on yield, factors affecting, morphology, and symptoms of, 3515.
— diseases, 1745q.
—, *Pseudomonas savastanoi* on, control, 3322; effect of, on, 2536.
Olpidium brassicae not transmitting tomato bushy stunt virus, 1246.
— — on cabbage, 365.
— — on lettuce, 365, 3740.
— — transmitting tobacco necrosis virus, 1374t, 2955, 3051; tobacco stunt virus, 1061.
— *cucurbitacearum* on cucumber, 3658.
Omadine against *Phytophthora capsici* on *Capsicum*, 2949.
Omphalia pigmentata and *O. tralucida* on date palm, 1944.
Onion (*Allium cepa*), *Alternaria porri* on, in Ivory Coast, 85; *Netherlands, 1b; S. Africa, 964; *U.S.S.R., 3066; control, 85, 964; effect of, on yield, 964; of leaf wax on germination of, 2931; factors affecting, 85, 964; morphology of, 85; new race of, 964; symptoms of, 85, 964.
—, *Botrytis allii* on, biology of, 966; control, 380, 2339, 3289.
*—, — *byssoidea* on, in U.S.A., 87.
—, *Erwinia aroideae* and *E. carotovora* on, in U.S.S.R., 2935.
*—, *Fusarium bulbigenum* on, in India, 683.
—, — *equiseti* on, in Israel, 1466.
—, — *oxysporum* f.sp. *cepae* on, in Brazil, causing ' seven-curls ' disease, 2021.
*—, — — f.sp. *conglutinans* on, in India, 683.
—, *Peronospora destructor* on, in Germany, 2029; Greece, 708; Morocco, 2929; Poland, 2956; S. Africa, 1357; changes in nucleic

metabolism in, 2020; control, 709, 965, 1357, 2929; effect of, on storage disorders, 1743u; on yield, 1743u; evaluation of fungicides against, 18; report on, 2956; severity of, 2029.
*[Onion], *Phytophthora porri* on, 1b; in *Netherlands, 381.
—, *Pseudomonas syringae* on, 1530.
—, *Puccinia graminis* on, formation of appressoria by and germination of uredospores on epidermis of, 103.
—, *Pyrenochaeta terrestris* on, 2119; in Mauritius, spread of, 2930.
—, *Sclerotinia squamosa* on, 3611; *in Italy, 3290; control, 2934; description of, 3290; factors affecting, 3612; severity of, 1b.
—, *Sclerotium cepivorum* on, 3611; control, 2933a; effect of volatile products from, on germination of sclerotia, 2932; technique for isolating, 2933b.
— seed diseases, resistance to, 379.
— storage disorders, 1743u, 3289.
—, *Urocystis cepulae* on, in Hungary, eradication of, 980a; biochemical changes in, associated with resistance, 2340; control, 3649.
— yellow dwarf virus on onion in Dardanelles, nematode associated with, 3647; transmission of mechanically by knives, 3288.
Onobrychis sativa, bean yellow mosaic virus on, in Bulgaria, resistance to, 1460.
Oospora pustulans on potato, see Potato.
— *virescens* on mulberry, 745.
Ophiobolus graminis, effect of N level on survival in culture on cellulose, 1097.
— — in soil, 1781, 2584n.
— — on barley, 1375e, 3408.
— — on cereals, see Cereals.
— — on oats, 144, 1098a.
— — on turf, 1592.
— — on wheat, see Wheat.
Opium poppy (*Papaver somniferum*), bean yellow mosaic virus on, in Bulgaria, 1460.
— —, *Peronospora arborescens* on, control, 281.
Optical instruments, fungi on, evaluation of fungicides against, 997.
Opuntia virus, differentiation of, from tobacco mosaic virus and properties of, 1160.
Orange (*Citrus aurantium, C. nobilis, C. sinensis*, etc.), *Alternaria citri* on, control, 20321; epidemiology of, 195.
*—, *Aspergillus fumigatus* on, in India, symptoms of, 2719.
—, (?)boron deficiency in, in Iran, symptoms of, 3063d.
—, *Botryodiplodia theobromae* on, effect of, on ascorbic acid content of, 2482.
—, citrus crinkly leaf virus on, 2032m; protection conferred against citrus infectious variegation virus by, 2165a; reinfection of, by sub-cortical injections, 2165b; transmission of, to cowpea, 2032m.
—, — exocortis virus on, in Japan, colour test for, 2165.
—, — greening virus on, in India, 2167; S. Africa, 524; anatomy of, 3441; survey of, 524; symptoms and transmission of, by vectors, 2167.
—, — 'impietratura' virus on, 1881; (?)in Iran, symptoms of, 3063d.
—, — infectious variegation virus on, in Italy, 189; protection against citrus crinkly leaf virus conferred by, 2165a; reinfection of, by sub-cortical injections, 2165b; transmission of, by chip-bud grafting and sap, 189; to bean and cowpea, 189.
[Orange, citrus] stem pitting virus on, 1882; in Italy, 816.
—, — stubborn disease virus on, in Italy, 1880; symptoms of, 187.
—, — tristeza virus on, in India, 522; U.S.A., causing decline, 1124.
—, — variegation virus on, storage of, on *Antirrhinum* and *Petunia*, 2716.
— crinkle scurf, effect of, on yield, 1557.
—, *Diaporthe citri* and *Diplodia natalensis* on, mode of entry of, 3114.
—, *Fusarium stilboides* and *Glomerella cingulata* on, in India, 818.
—, *Guignardia citricarpa* on, control, 1127.
—, *Macrophomina phaseoli* on, in India, hosts and symptoms of, 196.
—, *Penicillium digitatum* on, control, 3442, 3443; role of wounds in infection by, 1129.
—, — *italicum* on, control, 3442; saltant forms of, 197.
—, *Sclerotinia sclerotiorum* on, in Italy, morphological characters and symptoms of, 525.
—, *Thielaviopsis basicola* on, symptoms of, 1884.
—, *Xanthomonas citri* on, in Argentina, 1556.
Orchid, tobacco mosaic virus on, differentiation of strs. of, 2738.
— viruses, 390m.
Organo-mercury, see Mercury compounds, organic.
Ornamentals, *Dahlia* mosaic virus on, cellular level of infection by, 2357e.
—, diseases of, in U.S.S.R., 2732.
—, *Erwinia carotovora* on, in Iran, 3315.
—, *Erysiphaceae* on, in Estonia, review of, 831.
—, *Fomes torulosus*, **F. t.* f.sp. *cercidis*, *Ganoderma applanatum*, **Polyporus hispidus*, and *Polystictus* on, in U.S.S.R., 1147.
—, *Rosellinia necatrix* on, in Iran, biology and hosts of, 3064.
—, *Stemphylium floridanum* on, in Canada, intercepted from abroad, 3346.
—, *Stereum hirsutum* on, in U.S.S.R., 1147.
—, turnip yellows virus on, effect of Al foil on transmission of, by vectors in the field, 395g.
—, virus diseases of, in Germany, review of work on, 2637.
Orobanche, *Verticillium* on, 478.
*Ortanique [*Citrus* hybrid], *Sphaeropsis tumefaciens* on, in Jamaica, 2958a.
Ortho 5871 against *Botrytis allii* on onion, 380.
Orthocide against *Blumeriella jaapii* on cherry, 3302c; *Botrytis cinerea* on grapevine, 3522; *Colletotrichum lagenarium* on cucumber, 971; *Coniella diplodiella* on grapevine, 1935; *Plasmopara viticola* on grapevine, 2791; as seed treatment for sorghum, 3098.
— injury to grapevine, 2791.
— 50 against *Botrytis cinerea* on strawberry, 3164; *Polystigma rubrum* on plum, 2528; *Sporidesmium sicynum* on fig, 1213.
— 50W against *Cycloconium oleaginum* on olive, 1745t.
— 75, resistance of *Pyricularia oryzae* to, 3105.
— — in combination against *Corticium solani* on broad bean, 3633.
— 83, effect of, on apple, 2031b.
— S.T.X. in combination against *Corticium solani* on broad bean, 3633.

Orthodifolatan against *Glomerella cingulata* on coffee, 3116.
— 80W against *Cylindrocladium scoparium* on spruce, 3243.
Ortho-LM in combination as seed treatment for groundnut, 2019.
Orthophaltan against *Alternaria tenuis* on tomato, 1294; *Botrytis cinerea* on grapevine, 2791, 3522; on strawberry, 3164; cyclamen root rot, 3133; *Fusarium oxysporum* f.sp. *gladioli* and *Penicillium gladioli* on *Gladiolus*, 1908; *Plasmopara viticola* on grapevine, 2791; as soil disinfectant, 1156.
Oryza sativa, see Rice.
Ostrinia nubilalis, relationship between susceptibility of oats to *Trichometasphaeria turcica* and, 1860.
Oxathiins, fungitoxicity of, 978b.
Oxycoccus macrocarpus and *O. palustris*, see Cranberry.
Oxygen deficiency, effect of, on growth and sporulation of fungi, 1173c.
Oxyphenyl-mercuric chloride as seed treatment for apple, 1377m.
Oxyquinoline sulphate, inhibition of *Typhula* on *Ficus pumila* by, 543.
8-oxyquinoline-tartrate, antifungal properties of, 3335.
Oxytetracycline in combination against *Pseudomonas lachrymans* on cucumber, 996; *Xanthomonas campestris* on cabbage, 996.
Oxythioquinox against *Botrytis fabae* on broad bean, 419; *Podosphaera leucotricha*, 2199.
Ozone, effect of, on bean, 373; on conidiophores and conidia of *Alternaria solani*, 2610; on *Penicillium digitatum* and *P. italicum* on citrus, 2483.
— injury to bean, 3702; to crops in U.S.A., 370; to plants in U.S.A., 780, 3700a, c; to spinach and tobacco, 3702.
— not causing pine needle blight, 926.

Pachybasium ?candidum on *Lentinus edodes*, 729.
Pachyrhizus bulbosus, *Phakopsora pachyrhizi* on, 1355.
Paecilomyces farinosus on insects, 1394.
Paeonia, see Peony.
Pancreatic ribonuclease, inactivation of cucumber mosaic virus Q str. by, 3388.
Panicum maximum, vectors of rice hoja blanca virus on, 1538.
— *miliaceum* bud wilt in Senegal, 1462.
— —, *Fusarium equiseti* on, in Israel, 1466.
— —, *Tolyposporium penicillariae* on, in Senegal, 1462.
*— *virgatum*, *Ustilago trebouxii* on, in U.S.A., 87.
Panogen against *Corticium solani* on cotton, 2597; as seed treatment for barley, 133; rye, 146; wheat, 133.
— in combination as seed treatment for groundnut, 2019.
— 15, resistance of *Pyricularia oryzae* to, 3105.
— metox as seed treatment for cereals, 1077.
— — versus Bayer 5660, 1077.
Pansy (*Viola tricolor*), *Aphanomyces cuteiches* on, in W. Scotland, 1746d.
—, *Centrospora acerina* on, in U.S.A., symptoms of and transmission of, by (?)seed, 841.
—, *Pseudomonas* on, in Germany, symptoms of, 1161.
Papaver somniferum, see Opium poppy.
Papaw (*Carica papaya*) debility in Tanzania, aetiology of, 2785a.
—, delayed dithiocarbamate toxicity in, 393e.
— distortion mosaic virus on papaw in India, resemblance of, to papaw mosaic virus in Puerto Rico, 81.
— (—) ring spot virus, papaw faint mottle virus str. of and transmission of, by aphids, 2223.
—, *Fusarium solani* on, in India, symptoms of, 3061.
—, *Macrophomina phaseoli* can infect, 196.
— mosaic virus assigned to clover yellow mosaic virus and potato virus X group, 2223.
— — — on papaw in Puerto Rico, resemblance of to papaw distortion mosaic virus in India, 81.
— 'pencil point' in Tanzania, 2785a.
—, *Rhizopus stolonifer* on, in India, symptoms of, 3061.
— ring spot virus on papaw, infectivity of, 1381l.
— 'small head' in Tanzania, 2785a.
— virus disease in E. Africa, spread, symptoms, and transmission of, by sap. 1379b.
— — diseases in Tanzania, causing debility, 2785b.
Paper, micro-organisms on, effect of, on, 3343; study on, 2988.
Paphiopedilum callosum, *Calonectria uniseptata* on, perfect state of *Cylindrocladium scoparium*, 2739.
**Papulospora byssina* on mushroom, 727.
Paraquat against *Cercosporella herpotrichoides* and *Ophiobolus graminis* on cereals, 1375f.
Paratanus exitiosus transmittting beet yellow wilt virus, 2312.
Parathion against *Puccinia coronata* on oats, 2441; *P. graminis* and *P. recondita* on wheat, 2441; vectors of *Capnodium* and *Meliola* on coffee, 1562.
— ineffective against *Puccinia graminis* on oats, 2441.
Paratoluene sulphonamide against *Sclerospora rayssiae* var. *zeae* and *S. sacchari* on maize, 2705.
Parsley (*Petroselinum crispum*), *Cercospora punctum* on, 450.
—, *Pythium ultimum* on, factors affecting appearance of symptoms of, 714.
Parsnip (*Pastinaca sativa*), *Itersonilia pastinacae* on, in England, 1063b.
—, *Pyrenochaeta terrestris* on, 2119.
—, *Septoria pastinacae* on, in U.S.S.R., 1464.
— yellow fleck virus, detection of, 1457.
— — — —, properties, purification and transmission of, 3650.
— — — —, transmission of, in association with *Anthriscus* yellows virus by vectors, 3301l.
Parzate against *Alternaria solani* on potato, 3186.
— C in combination versus cyprex, 1686; DuTer, 1686.
PAS against *Cercospora sequoiae* on *Juniperus scopulorum* and *J. virginiana*, 2862.
Pasomycin, effect of, on *Fomes tremulae*, 2388.
Passalora, re-definition of genus, 450.
Passiflora edulis, see Passion fruit.
Passion fruit (*Passiflora edulis*), *Alternaria passiflorae* on, in Kenya, 2c.

*[Passion fruit], *Cylindrosporium* on, morphology and symptoms of, 1381a.
— — woodiness virus on passion fruit, in Kenya, 2959b; Queensland, 270; hosts of and study on, 271.
Pastinaca sativa, see Parsnip.
Paulownia witches' broom virus on *Paulownia*, structures in tissues infected by, 657.
PCBA against *Pyricularia oryzae* on rice, 2160a.
—, inhibition of *Pyricularia oryzae* on rice by, 2160b.
— versus PMA, 2160a.
PCNB, see Quintozene.
Pea (*Pisum sativum*), alfalfa mosaic virus on, 3626.
— American streak virus on clover, 3484.
—, *Aphanomyces euteiches* on, in U.S.A., 393f; control, 393f, 1427; effect of pH on germination of oospores of, 2906; of *Pythium debaryanum* and *P. ultimum* in soil on, 1347.
— aphids, use of entomophthorous fungi against, 737g.
—, *Ascochyta* on, control, 2905.
—, — *pinodella* on, epidemiology of, 1721; serological relationship of, with *A. pisi* and *Mycosphaerella pinodes*, 2320; soil as source of infection for and virulence of, 1721.
—, — *pisi* on, effect of light and UV light on, 24; serological relationship of, with *A. pinodella* and *Mycosphaerella pinodes*, 2320.
—, bean leaf roll virus on, transmission of, by vectors, 3630.
—, — yellow mosaic virus on, in Bulgaria, 1460; transmission of mechanically and by vectors, 3305h.
—, — — — — — +lucerne mosaic virus on, interaction of, 775.
—, — — — — — +*Pythium* on, in U.S.A., 952.
—, *Botrytis cinerea* on, factors affecting susceptibility to, 1348.
— damping off, control, 41.
— early browning virus on pea in *Belgium, 1713; Netherlands, 1059; ?new str. of, 1g; transmission of, by nematodes, 1059.
—, effect of *Penicillium purpurogenum* on respiratory enzymes in, 3360; of, on survival of *Typhula idahoensis* sclerotia in soil, 3409.
— enation mosaic virus, latent period in vectors of, 2577.
— — — — —, preparation and properties of protein and nucleic acid components of, 3627.
— — — — — on broad bean, 3263.
— — — — — on Leguminosae, 2317, 2318.
— — — — — on pea in U.S.S.R., 693; control, 3264; epidemiology of, 3264; incidence of, 693; properties of, 3628; retention of, 370; transmission of, by vectors, 370, 1346, 3264, 3628.
— — — — — on vetch, 693.
—, *Erysiphe polygoni* on, in Portugal, hosts of, 2003.
— false leaf roll virus on pea, transmission of, by fungal zoospores, sap, seed and vectors, 1714.
—, *Fusarium* on, in Hong Kong, 3668b; control, 3265.
—, — *oxysporum* on, in Italy, *Heterodera gottingiana* associated with, 694a, c.
—, — — f.sp. *apii* can infect, 695.
—, — — f.sp. *pisi* on, in India, 2907; control, 951, 1718, 2907; effect of *Aphelenchus avenae* on pathogenic activity and survival of, 207b; of Ca deficiency on susceptibility of, to, 1g; factors affecting, 1716, 2004, 2907; physiologic races of, 1717; var. react. to, 2004.
[Pea, *Fusarium*] *poae* on, persistence of, in soil, 2321.
—, — *solani* f.sp. *pisi* on, in S. Australia, 2322; control, 1718; dissemination of, 2322; effect of UV light on, 2908.
—, — — f.sp. *pisi*+*Pythium* on, in U.S.A., 952.
— leaf roll virus on pea in U.S.S.R., incidence of, 693; epidemiology of, 3264; transmission of, by vectors, 3264, 3629.
— — — — — on vetch, 693.
—, lucerne mosaic virus+bean yellow mosaic virus on, interaction of, 775.
— mosaic virus on Leguminosae, 2317, 2318, 3048.
— — — on clover, 239, 240.
— — — on pea, comparative transmission of, by different strs. of vectors, 1715; epidemiology of, 3264; relationship of, with vector, 2001; transmission of, by vectors, 3264.
— — —, resemblance of lupin virus in Hungary to, 1743b.
— — — +*Pythium* on pea in U.S.A., 952.
— — — stem browning str. on pea in N.Z. transmission of, by sap and vectors, 2904.
— mottle virus on Leguminosae, 2318.
—, *Mycosphaerella pinodes* on, in Czechoslovakia, 371; effect of light and UV light on, 24; epidemiology of, 1721; soil as source of infection, 1721; serological relationship of, with *Ascochyta pinodella* and *A. pisi*, 2320; virulence of, 1721.
—, *Oidium* on, in Hong Kong, 3668b.
—, *Pythium* on, control, 1718, 3265; relationship between seed exudates and pre-emergence mortality, 1720.
—, — +bean yellow mosaic virus, +pea mosaic virus, and +*Fusarium solani* f.sp. *pisi* on, 952.
—, — *debaryanum* on, in U.S.A., suceptibility to, 952.
*—, — *hydnosporum* on, in U.S.S.R., control and persistence of oospores of, in soil, 1719.
—, — *ultimum* on, in U.S.A., 952; effect of methyl dithiocarbamate on, 978c; of thiram residues in soil on, 41; susceptibility to, 952.
—, red clover vein mosaic virus on, 3626.
—, *Rhizoctonia* on, control, 3265.
—, *Sclerotinia fructicola* on, changes in phenylalanine metabolism associated with pisatin production in, 758; production of phytoalexin by, 1420, 3666t.
—, *Thielaviopsis basicola* on, 978n.
— Wisconsin streak virus on pea, 3626; inhibition of, by actidione and streptomycin, 2002.
Peach (*Prunus persica*), apple chlorotic leaf spot virus on, symptoms of, 2519.
—, — latent virus on, in N.S.W., symptoms of, 2032p.
—, cherry rasp leaf virus on, 1616.
—, — rosette disease on, (?)cucumber mosaic virus str. associated with, 3503.
— deficiency diseases, 396.
— disorder in U.S.A., symptoms of, 2768.
—, fungi on, list and review of, 247.
—, *Fusicoccum amygdali* on, biology of, 2213; effect of Cl and N nutrition on, 1202.
—, *Graphium persica* on, desiccation caused by, 2767.
— mosaic virus in U.S.A., comparison of plum pox virus with, 2210a.

[Peach mosaic virus]+apricot ring pox virus on apricot, 853.
—, plum pox virus on, in Switzerland, 1922, 2761b; control, 1922; symptoms of, 2761b, 2763; transmission of, to *Chenopodium foetidum*, 2357i.
—, *Prunus* necrotic ring spot virus on, in Japan, 2212.
—, *Pseudomonas syringae* on, 1530; effect of syringomycin on, 1203; production of antibiotic by, 1617; transmission of, by bud propagation, 261.
—, *Rhizopus stolonifer* on, 3694.
—, rose mottled mosaic virus on, mechanical transmission of, 2765.
—, *Sclerotinia fructicola* on, orchard evidence of direct penetration by, 259; sporulation of, compared with apple, 2201.
—, *Sphaerotheca pannosa* on, in Hungary, 1743d.
—, — — var. *persicae* on, changes in biochemical and physiological processes caused by, 260a; effect of, on intensity of respiration and enzymes, 260b.
— stem pitting in U.S.A., 3669c; symptoms of, 3499, 3669c; (?)virus causing, 3499, 3669c; var. react. to, 2764.
—, *Stereum purpureum* on, 396.
—, *Stigmina carpophila* on, in Kashmir, 2759; control, 396.
—, *Taphrina deformans* on, in Hungary, 1743e; Kashmir, 2759; control, 396, 1743e, 2529; factors affecting, 2529; var. react. to, 2529.
—, *Valsa* on, demonstration of contamination by, 258.
—, — *cincta* on, control, 575.
—, — *leucostoma* on, 2214; carbohydrate requirements of and factors affecting, 2214.
—, *Venturia cerasi* on, in Rumania, 577.
— virus disease on peach in Israel, similarity of, to peach yellows virus, 257.
— — diseases in Denmark, 730e; Hungary, 1743f; previously undescribed, 1743f; symptoms of, 730e; testing for, 246.
— wart virus on plum, 570.
—, *Xanthomonas pruni* on, factors affecting stomatal activity and susceptibility to, 3318.
— yellow bud mosaic virus on peach, hosts of and transmission of, by vectors, 571.
— yellows virus on peach, sources of infection for and transmission of, by vectors, 852.
Pear (*Pyrus communis*), *Alternaria kikuchiana* on, biosynthesis of altenin by, 1772.
*—, *Amphisphaeria pyrina* on, in U.S.S.R. 86.
— black-end and hard-end, ?relationship of yuzuhada disease of *Pyrus serotina* to, 2526.
— bud drop virus on in Bulgaria, 2523.
— decline virus on in U.S.A., 401d; (?)causing leaf curl disease, 401d, 1191; *Psylla pyricola* associated with leaf drop symptom of, 2755; recovery of virus from stored pollen of, 401e.
—, effect of fluorine on, 248.
—, *Elsinoe piri* on, first record of, in N. America, 2524.
—, *Erwinia amylovora* on, in England, 1604; Netherlands, 1d; Poland, 1919; breeding against, 3494; *Crataegus* as source of infection of, 1d; dissemination of, by wind, 1610; eradication of, 1919; var. react. to, 2525.
—, *Fabraea maculata* on, in Bulgaria, 1920; *Rhodesia, 2587a; control, factors affecting, and overwintering of, 3495; var. react. to, 1920.
[Pear], fungi on, metabolism of arbutin by, 2393; review of, 247.
*—, *Glonium pyricolum* on, in U.S.S.R., 86.
—, *Gymnosporangium fuscum* on, in Bulgaria, *Juniperus* as intermediate host for, 1920.
—, *Helminthosporium papulosum* on, in U.S.A., symptoms of, 2590f.
— leaf curl disease associated with pear decline virus, 401d, 1191.
— mosaic virus symptoms resembling apple chlorotic leaf spot and stem pitting viruses, 469.
—, *Mycosphaerella sentina* on, control, 1609.
— pollen virus, properties, purification, and transmission of, 3493.
—, *Pseudomonas mors-prunorum* on, illustration of symptoms of, 2208.
—, — *syringae* on, control, 2757; distinct from *P. mors-prunorum*, 1611; stability of, 2758; uniformity of isolates, 1611.
— red mottle virus on pear in Bulgaria, 2523; symptoms and transmission of, by vectors, 2756.
— ring pattern mosaic virus on pear in Bulgaria, 2523; symptoms of, 1178.
—, *Sclerotinia fructicola* on, sporulation of, compared with apple, 2201.
— stony pit virus symptoms resembling apple chlorotic leaf spot and stem-pitting viruses, 469.
— storage disorders, review of, 2754.
— superficial scald, control, 1612.
— vein yellows virus on pear in Bulgaria, 2523; symptoms of, 1178.
—, *Venturia pirina* on, in Bulgaria, 1920; control, 396.
— virus diseases, technique for obtaining plants free from, 249, 2191; testing for, 246.
— — — on *Chenopodium amaranticolor* and *C. quinoa*, 469.
—, Oriental, see *Pyrus serotina*.
Pecan (*Carya pecan*), *Fusicladium effusum* on, in U.S.A., 1686; control, 3584.
—, *Microsphaera alni* on, in U.S.A., 1686.
—, *Pythium* on, causing feeder root necrosis, 3225.
— shuck disease, symptoms of, 2278.
(?)*Pectobacterium parthenii* on *Dieffenbachia*, 3459d.
— — var. *dianthicola* on carnation, 3129.
Pedicularis ?kingii, *Puccinia bhutanensis* on, in Bhutan, 2622.
Pelargonium, culture of virus-free from stem-tips and callus, 3472.
— leaf curl virus, lyophilization of, 2104.
— — — and mosaic viruses on *Pelargonium*, diagnosis and symptoms of, 1162.
—, *Puccinia pelargonii-zonalis* on, in Hungary, 1743w; *Italy, 547; *Netherlands, 2505; *U.S.A., 2506; aetiology of, 2505; control, 2505, 2506; symptoms of, 2506.
— ring spot virus on *Pelargonium*, diagnosis and symptoms of, 1162.
—, *Xanthomonas pelargonii* on, spec. react. to, 842.
— yellow net virus on *Pelargonium* in Denmark, 730g.
Pellicularia koleroga on coffee, 3445.
**Peltosphaeria pustulans* on apple, 86.
Penicillin against *Xanthomonas phaseoli* on bean, 397c.
—, inhibition of *Xanthomonas campestris* by, 1338.

Penicillium brevicompactum on wheat straw, 2459.
— *canescens* on spruce, 1326.
— *citrinum*, primary luminescence of, 460.
— *claviforme* on grapevine, 3523.
— *corymbiferum* on flower bulbs in Germany, 833.
— — on *Iris*, 2500.
— *cyclopium* on hyacinth, 1374o.
*— — on maize, 2358d, 2476.
— — on spruce, 1326.
— — +*Pseudomonas marginalis* on hyacinth, 1374o.
— *digitatum*, longevity of, under oil, 3045.
— —, metabolism of, in relation to ethylene biosynthesis, 3361.
— — on citrus, 2483, 2717.
— — on orange, 1129, 3442, 3443.
— *expansum* on apple, 1188.
— — on beet, stored, 2903.
— — on cherry, 1925.
— —, technique for determining sensitivity of, to heat, 2635.
— *frequentans* on maize, 2476.
— *funiculosum* in soil, 3447.
— — on maize, 2476.
*— — on pineapple, 1631.
— *gladioli* on *Gladiolus*, 1908.
— *glaucum*, effect of, on plant respiration, 751.
— *herquei* on maize, 2476.
— *implicatum* as seed treatment for maize, 2475.
— *italicum* on citrus, 2483, 2717.
— — on orange, 197, 3442.
— *martensii* on grapevine, 3523.
— — on spruce, 1326.
— *multicolor* on maize, 2476.
— *nigricans* in rhizosphere of cotton, 3447.
— *notatum* on tomato seed, 1302.
— *oxalicum* on maize, 1525a, b, 3436.
— *purpurogenum* on spruce, 1326.
— —, primary luminescence of, 460.
— *restrictum*, antagonism of antibiotic from *Rhizopogon roseolus* and *Tricholoma saponaceum* to, 1764.
— *roqueforti*, primary luminescence of, 460.
— *rubrum* on groundnut, 3645.
— —, production of antibiotic by, 21.
— *rugulosum* on maize, 2476.
— *steckii* on wheat straw, 2459.
— *tardum*, primary luminescence of, 460.
— *variabile* on maize, 2476.
— *waksmanii* in soil, 1318.
Peniophora near *P. pini* and *P. filamentosa* on timber, 2285.
— *gigantea* on pine, see Pine.
— *mollis* on timber, 932.
Pennisetum purpureum stunting ?virus in Uganda, non-transmission of, by vectors, 1379c.
*— *typhoides*, *Cercospora typhoides* on, symptoms of, 1531.
— —, *Claviceps microcephala* on, in India, 980b; control, 1863.
— —, *Colletotrichum graminicola* not infecting, 3099.
— —, *Helminthosporium australiense* on, survival of, in soil, 1862.
— —, — *setariae* on, effect of temp. on var. react. to, 165.
— —, *Pseudomonas rubrilineans* not infecting, 804.
— —, *Puccinia penniseti* on, effect of phyllosphere mycoflora on, 1113m.
[*Pennisetum typhoides*, *Puccinia*] *substriata* var. *penicilliarie* on, control, 1113n.
— —, *Sclerospora graminicola* on, in India, 1113p; effect of, on respiration of, 1533; epidemiology and host-parasite relationship of, 1113i; growth of, in tissue culture, 3100.
— *typhoideum*, *Microxyphiella hibiscifolia* on, in India, 3454.
Pentachloronitrobenzene, see Quintozene.
Pentachlorophenol, adaptation of *Cephaloascus fragrans* on timber to, 360.
—, against *Dothidella ulei* on *Hevea* rubber, 880e.
—, analytical methods for, 3326.
—, resistance of timber-decaying bacteria to, 930.
— in combination as timber preservative, 681, 3609.
Pentaene G8, biological activity of, 3338.
— —, inhibition of sunn-hemp mosaic and tobacco mosaic viruses by, 422.
— —, production of, by *Streptomyces anandi*, 422.
Pentatrichopus fragaefolii transmitting strawberry mottle virus, 395h; strawberry virus diseases, 394f.
Peony (*Paeonia*), *Botrytis cinerea* on, fungicidal properties of phytoncides of, 1148.
**Peperomia*, *Phytophthora nicotianae* var. *parasitica* on, 2507.
— and *P. sandersii*, *Phytophthora nicotianae* var. *parasitica* on, cultural and pathogenic variation in, 2657.
Pepper, black (*Piper nigrum*), (?)*Phytophthora hibernalis* on, in Jamaica, symptoms of and var. react. to, 2958b.
Peppermint (*Mentha piperita*), *Phoma menthae* on, inoculation and symptoms of, 401f.
—, *Puccinia menthae* on, control, 1220; effect of, on medicinal properties of, 3178.
Peregrinus maidis not transmitting *Pennisetum purpureum* stunting virus, 1379c.
— — transmitting maize mosaic virus, 1107; sorghum chlorosis virus, 3438.
Perenox against *Alternaria solani* on potato, 3186; *Mycosphaerella arachidis* on groundnut, 1356.
— injury to groundnut, 1356.
— versus CL–50, 3686.
Periconia circinata, chemistry and mode of action of toxin produced by, 1421.
— — on sorghum and wheat, 3030.
— *macrospinosa*, C.M.I. description of, 3030.
Peridermium cerebrum on pine, 1692.
— *filamentosum* on *Castilleja* and pine, 2287.
— *fusiforme* on pine, 1692.
— *harknessii* on pine, see Pine.
— *holwayi*, seasonal manifestation of *Puccinia-strum goeppertianum*, 448.
— *mexicanum*, *Cronartium conigenum* previously named, 2288.
— *ornamentale*, seasonal manifestation of *Pucciniastrum goeppertianum*, 448.
— *stalactiforme* on pine, 1986, 2287.
Peronospora antirrhini on *Antirrhinum majus*, 1809.
— *arborescens* on *Mecanopsis*, 1746d.
— — on opium poppy, 281.
— *aubretiae* on *Aubrietia deltoides*, 1809.
— *destructor* on onion, see Onion.
— *effusa*, see *P. farinosa*.
— *farinosa* on beet, see Beet.

[*Peronospora farinosa*] on *Beta*, *Chenopodium album*, and spinach, ff.sp. *betae*, *chenopodii*, and *spinaciae* proposed for, 1039.
— *jordanovii* on *Brassica jordanovii*, 1337.
*— *mesembryanthemi* on *Mesembryanthemum criniflorum*, 1063a.
— *parasitica* on *Brassica*, 3299a.
— — on cabbage, see Cabbage.
— — on cauliflower, 1375t.
— — on *Matthiola*, 2032d, *2737.
— —, ultrastructure of, 3375.
— *schachtii*, see *P. farinosa*.
— *tabacina*, effect of nature of cell walls of, on susceptibility of, to toxic compounds, 1380c; of phosphoric acid derivatives on, 1763.
— —, germination of conidia of, 2259.
— — on *Nicotiana exigua*, 1965.
— — on *N. plumbaginifolia*, 2258.
— — on tobacco, see Tobacco.
Peronosporaceae in Germany, survey of, 2080.
Perotzin against *Alternaria solani* on tomato, 2836; *Peronospora parasitica* on cabbage, 2896; *Phytophthora infestans* on tomato, 2836; *Pseudoperonospora cubensis* on cucumber, 970; *Septoria lycopersici* on tomato, 2836.
Peroxyacetyl nitrate, injury to plants, 780, 3700a, c, 3701.
Persea americana, see Avocado pear.
Persimmon (*Diospyros kaki* and *D. virginiana*), *Botrytis cinerea* on, control, 2786.
—, *Cephalosporium diospyri* on, in U.S.A., 1681.
—, *Phomopsis diospyri* on, control, 2786.
Pestalotia albomaculans, effect of gibberellic acid on growth and sporulation of, 3011.
— *bicolor* on *Annona squamosa*, 1629.
— *gracilis*, effect of light on growth and sporulation of, 752.
— *laurina* on *Laurus nobilis*, 2501.
— *longi-setula* on strawberry, 2780.
— *pauciseta* on *Litchi chinensis*, 864.
— *rhododendri*, morphogenetic effects of volatile organic compounds on, 3356.
*— *sapotae* on *Achras sapota*, 1064.
— *truncata* on apple, 1603.
— — on fruit, 1598.
Pestalotiopsis palmarum on coconut, 3528.
— *versicolor* on *Rhododendron*, 1374n.
Pestalozzina soraueriana on *Alopecurus pratensis*, 2743.
Pesticide handbook 'Entoma', 20th edition of, 2978.
Pesticides, analytical methods for, 3326.
—, dictionary of common names, revised list of, 3324.
Pests and diseases of introduced plants (Byelorussia), book on, 2366.
Petroleum growth substances as soil disinfectant, 612.
Petroselinum crispum, see Parsley.
Petunia as indicator for cherry destructive canker virus, 1177.
—, aster yellows virus on, structures in tissues infected by, 657.
—, citrus exocortis virus on, transmission of, by dodder, 523.
—, — infectious variegation virus on, storage of, on, 2716.
—, plum line pattern virus on, retention of infectivity by, 3156.
—, radish enation mosaic virus on, symptomless carrier of, 2309.
[*Petunia*] *hybrida*, cucumber green mottle mosaic virus can infect, 1736.
— —, tobacco mosaic virus str. on, in U.A.R., 2740.
Pezicula alba, effect of controlled atmosphere on growth of, 1187.
— — and *P. malicorticis* on apple, see Apple.
Pezizales of Australia, account of, in Herb. R.B.G., 3733.
PH 50–77 as seed treatment for pine, 3595b.
Phacelia, potato virus Y and tobacco etch virus can infect, 1455.
Phacidiella discolor on fruit, 1598.
Phacidiopycnis pseudotsugae on *Tsuga canadensis*, 675.
Phacidium abietis, hosts of, 338.
— *infestans* on pine, 1314.
— *taxicolum* on yew, 2884.
Phaeocryptopus gaeumannii and *P. nudus*, *Adelopus* needle-cast fungi named, 2283.
— *nudus*, *Rhizosphaera* resembling, 1313.
Phaeoseptoria eucalypti on *Eucalyptus*, 328.
— — on *E. bicostata*, 1308.
Phaeosphaeria eustoma on *Dieffenbachia picta* in Germany, imported from U.S.A., 2499.
— *maydis* on maize, 113b.
Phakopsora gossypii on cotton, 3731a.
— *pachyrhizi*, hosts and physiologic races of, 1355.
Phalaris arundinacea, *Ascochyta brachypodii* on, in Germany, E., 2743.
Phaltan against *Botrytis cinerea* on grapevine, 3971, 3172; *Colletotrichum lagenarium* on cucumber, 971; *Deuterophoma tracheiphila*, 1883b; *Lophodermium pinastri* on pine, 2865; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Septoria lycopersici* on tomato, 1377i; *Taphrina deformans* on peach, 2529.
— in combination against *Sclerotinia minor* on radish, 2356d.
Phaseolus, *Phytophthora* on, virulence of, 3611.
—, tobacco ring spot virus on, correlation of decline of specific infectivity with nucleic acid degradation, 3562.
— *aureus*, *Alternaria tenuis* on, 3639.
— — as indicator for citrus viruses, 2165c.
— —, citrus crinkly leaf virus and citrus infectious variegation virus on, 2165c.
— —, *Corticium solani* on, changes associated with, 2008, 2332, 2917.
— —, cucumber mosaic virus on, peroxidase isozymes in, 2112.
— —, — — — str. on, 721.
— — diseases in Iran, 3262.
— —, *Pythium aphanidermatum* and *P. ultimum* on, factors affecting virulence of, 1351.
— *limensis*, *Cochliobolus carbonum* on, physiology of resistance of, 2333.
— *longipedunculatus*, ?*Abutilon* mosaic virus str. on, causing yellow mosaic, in Brazil, 1055.
— *lunatus*, cucumber mosaic virus on, factors affecting vector transmission of, 701a, b.
— —, *Phytophthora phaseoli* on, viability of, in storage, 3274.
— —, — — strs. A and B on, resistance to, 3273.
— —, *Uromyces appendiculatus* on, effect of temp. on, 3272; fungitoxins in wound sap of, 702.
— *mungo*, cucumber mosaic virus str. on, 721.
*— —, *Isariopsis griseola* on, in Somalia, 700.
*— — leaf crinkle ?virus in India, 2432.

[*Phaseolus*] *vulgaris*, see Bean, French and Runner.
Phenotil against *Phytophthora infestans* on potato and tomato, 1398; *Plasmopara viticola*, 1398; *Venturia inaequalis*, 1398.
Phenoxy-γ-butyric acid derivatives against plant diseases, 1399.
Phenthiuram and phenthiuram molybdate as seed treatment for broad bean and *Cicer arietinum*, 1595.
Phenylazothioformamide, active principle in fungicidal action of 1-phenylthiosemicarbazide, 2984.
Phenyl N,N′-dimethyl phosphorodiamidate as seed treatment for wheat, 3074.
— mercury acetate, see PMA.
— — chloride, see PMC.
— — compounds against *Pezicula alba* and *P. malicorticis* on apple, 1375 l.
— — derivative of 8-hydroxyquinoline, effect of, on *Pseudomonas syringae* on pear, 2757.
— — dimethyldithiocarbamate against *Venturia inaequalis*, 2198.
— — nitrate as wound dressing, 3496.
4-phenyl-4-(3-pyridyl)-3-oxatricyclo [2.2.1.$0^{2,5}$] nonane (UC 23271), chemical and physical properties of, 1401.
o-phenyl-phenol esters against *Penicillium digitatum* on orange, 3443.
1-phenylthiosemicarbazide, effect on *Aspergillus niger*, phenyl azothioformamide active principle in, 2984.
Phenylthiourea, chemotherapeutic effect on *Cladosporium cucumerinum* on cucumber, 3666o.
**Phialophora malorum* on apple, 3152.
Phleum alpinum, *Urocystis agropyri* on, subterranean sporulation by, 2184.
— *pratense*, *Heterosporium phlei* on, in Germany, 2743.
Phlox as indicator for cherry destructive canker virus, 1177.
—, cucumber mosaic virus on, overwintering host of, 228.
—, *Pleospora herbarum* on, factors affecting and var. react. to, 229.
— *paniculata*, *Erysiphe cichoracearum* on, in Switzerland, 1809.
Phlyctaena gossypii on cotton, 1573.
Phoenix dactylifera, see Date palm.
Pholiota adiposa on *Abies grandis*, 2858.
— *spectabilis* on *Acer saccharum*, 649.
Phoma alternariacea on tomato, 1303.
— *betae*, *Pleospora bjoerlingii* perfect state of, 948.
— *destructiva* on tomato, 1303.
— *eupyrena* on potato, 3301d.
— *exigua*, taxonomy of, 1442.
— — on potato, 1245, 3545.
— —, see also *P. foveata*.
— — ff.sp. *exigua* and *foveata* in soil, 3546a.
— — — — — — — on potato, 3546a, b.
— — var. *foveata* on potato, 1442, 3301d.
— — — — — proposed for *P. exigua* and *P. foveata* on potato, 1245.
— — var. *linicola* on flax, 1442.
— — var. *sambuci-nigrae* on elder, 1442.
— *foveata* in soil, 3190.
— — on potato, see Potato.
— —, see also *P. exigua*.
— *glomerata*, C.M.I. description of, 42.
*— *herbarum* on *Murraya exotica*, 546.
— — on poplar, 333.
[*Phoma herbarum*] var. *medicaginis*, germination of conidia and reproduction in, 2398.
— — — — on lucerne, 24, 1176, 1914.
— *insidiosa* on sorghum, 2154.
— *menthae* on peppermint, 401f.
— *oleracea* var. *helianthi-tuberosi* on sunflower, 1222.
— *prunicola*, C.M.I. description of, 42.
— *rostrupii* on carrot, 2936.
— *solanicola* in soil, 3190.
— — on *Capsicum*, 720.
— — on potato, 1376b.
— *spinaciae* on spinach, 3261.
— *tuberosa* on potato, 1246, 1247.
Phomopsis diospyri on persimmon, 2786.
— *lokoyae*, *Diaporthe lokoyae* perfect state of, 2571.
— *macrospora* on poplar, 332.
— *samararum* on ash, 325.
— *theae* on tea, 1268, 1961.
— *tuberivora* on potato, 2032c.
— *vexans* on eggplant, 388.
— *viticola* on grapevine, 2226, 2795.
Phoradendron flavescens, *Hymenochaete agglutinans* on, spread of, from oak, 2851.
Phorate against vectors of sesame viruses, 2800.
—, effect of, on *Verticillium alboatrum* on cotton, 2485.
Phosbutyl against *Verticillium dahliae* on cotton, and as seed treatment, 3120.
Phosphoric acids as fungicides, review of, 1762.
Phragmidium disciflorum on rose, 2366.
— *mucronatum* on rose, 1580.
— —, *P.* on *Agropyron smithii* and *Viola adunca* similar to, 91.
— *subcorticum* in Chile, factors affecting development of, 82.
— *tuberculatum* on rose, 1164.
Phthalan against *Elsinoe ampelina* on grapevine, 1634; *Plasmopara viticola*, 2792; *Septoria ribis* on gooseberry, 2772.
—, effect on *Erysiphe cichoracearum* on cucumber, 972.
Phycomycetes, baiting methods for isolation of, 2087c.
Phygon against *Botrytis cinerea* on persimmon, 2786; *Cylindrosporium maculans* on mulberry, 1630; *Didymella applanata* on raspberry, 3509; *Microsphaera alphitoides* on oak, 910; *Mycosphaerella fragariae* on strawberry, 2781; *Phomopsis diospyri* on persimmon, 2786; *Plasmopara viticola*, 2792; *Rhacodiella vitis* on grapevine, 1934; *Sphaerotheca pannosa* var. *rosae* on rose, 1164.
—, effect on *Erysiphe cichoracearum* on cucumber, 972.
Phyllachora, taxonomic monograph on, 452.
— *maydis* on maize, 2960a.
Phyllactinia corylea on almond, 2759.
— *dalbergiae* on *Dalbergia*, 3731b.
— *guttata* on hardwoods, 1035b.
Phyllosticta arachidicola-hypogaeae on groundnut, 2587c.
*— *argillacea* on *Rubus strigosus*, 87.
— *brunnea* on poplar, 2562b.
*— *cystopteridis* on *Cystopteris fragilis*, 87.
— *fraxini* on ash, 325.
— *gaillardiae* on *Calendula*, 2732.
— *gossypina* on cotton, 826.
*— *helianthi* on sunflower, 3066.
*— *ilicicola* on oak, 2414.
— *lauri* on *Laurus nobilis*, 2501.

[*Phyllosticta*] *prunicola* on plum, 2766.
— *rabiei* on *Cicer arietinum*, 375.
Phyllotreta striolata transmitting radish enation mosaic virus, 2309.
Phymatotrichum omnivorum in soil, 2491.
— — on cotton, 827.
— — on grapevine, 2789.
— —, production and germination of resting structures, 3354.
Physalis, *Corynebacterium michiganense* on, var. and spec. react. to, 1972.
— *floridana*, potato leaf roll virus on, 601.
— —, — spindle tuber virus on, symptoms of, 3395.
— *peruviana*, *Pseudomonas solanacearum* on, 280.
Physalospora miyabeana on *Salix*, 1746d.
— *obtusa* on apple, 1917, 2749.
— — on fruit, 1598.
— *rhodina* on cotton, 1575, 3122.
Physoderma maydis on maize, 3094.
— *trifolii* on clover, 240.
Physopella ampelopsidis on grapevine, 3731a.
— *zeae* on sorghum, 152b.
Phytoactin against *Valsa cincta* on plum, 1199.
—, effect on formation of mycorrhiza of pine, 1320; on *Rhabdocline pseudotsugae* on *Pseudotsuga menziesii*, 1325.
—, ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233; *C. ribicola* on pine, 1690.
—, properties and technique for assaying, 3340.
Phytoalexins, effect of O tension on production 1420.
— in pea, 3666t; soybean, 3666u.
—, role of, in resistance to fungal infection, 1007.
Phytobacteriomycin against *Pseudomonas glycinea* and *Xanthomonas phaseoli* var. *sojense* on soybean, 3637.
Phytopathologist's Handbook, revised and enlarged edition of Russian, 1387.
Phytopathology, Ann. Rev., Vol. 5, 986.
— in a hungry world, review article, 986q.
—, list of Dutch terms in, 2360.
—, practical guide, book on, 3311.
—, Rumanian treatise on, 987.
Phytophthora, homothallism, heterothallism, and interspecific hybridization in, 3742.
—, production of indole-lactic acid from tryptophan by, 2608.
—, relationship of C:N ratio to oospore production by, 1777.
— ? *arecae* on *Agave*, 1902.
— *cactorum*, effect of cholesterol and cholestanol on oospore formation in, 2399.
— — in soil, 2075.
— — on *Abies nobilis*, 2584p.
— — on apple, 1183, 1602.
— — on soybean, 2335, 3666u.
— *cambivora* on chestnut, 2274.
— *capsici*, control, 3611.
— — intraspecific matings of, 2083.
— —, light-cholesterol relationships in morphogenesis of, 1776.
— — on *Capsicum*, 2083, *2351, 2949.
— — on tomato, 2083.
— *cinnamomi*, distribution of, 92, 349.
— — in soil, 444, 1374c, 1430.
— — on avocado pear, 863.
— — on chestnut, 2274.
— — on *Erica*, 1374c.
— — on *Laurus nobilis*, 1586.
[*Phytophthora cinnamomi*] on *Rhododendron*, 1374n.
— — on *Vaccinium ashei* and *V. corymbosum*, 1207.
— —, physiology of chlamydospore germination, 3004.
— *citricola* on *Erica carnea*, 3941.
— — on hop, 1635.
— —, utilization of asparagine by, 2400.
— *citrophthora*, longevity under oil, 3045.
— — on citrus, 2032j.
— — on lime, 1885.
— —, technique for producing sporangia of, 2636.
— *colocasiae* on *Colocasia esculenta*, 2028.
— *cryptogea*, effect of polyphenols on growth and sporulation, 29.
— — on *Gerbera*, 3459f.
— — on potato, 2550.
— *drechsleri* on *Capsicum*, 1221.
— — on safflower, 592, 3527.
— *erythroseptica*, electron microscopy of, 2086.
— — on potato, 2550, 3063a, 3717.
— — on raspberry, 1623.
— — on tomato, 2560.
— *fragariae*, differentiation of races, 2590g, 2778, 2779.
— —, morphology of zoospores, 2085.
— — on strawberry, see Strawberry.
— —, storage in liquid N, 2365.
— *heveae* on cacao, 3060b.
— —, utilization of asparagine by, 2400.
— ?*hibernalis* on black pepper, 2958b.
— *infestans* as test fungus, 3699.
— —, composition of DNA from, 2401.
— —, cultural variability in, 2628.
— —, effect of phosphoric acid derivatives on, 1763.
— —, factors affecting growth of, 2586b.
— — on potato, see Potato.
— — on tomato, see Tomato.
— —, properties and virulence of, 292.
— —, ultrastructure of sporangia, 2810.
— *lateralis* on *Chamaecyparis lawsoniana*, 3466.
— (?)*meadii* on *Hevea* rubber, 2822, 3549c.
*— *megasperma* on lucerne, 243.
— — on soybean, 2335, 3666u.
— — var. *sojae*, asexual reproduction and behaviour of zoospores, in relation to roots, 957.
— — — —, morphology of zoospores, 769, 2084, 2085.
— — — — —, on soybean, 2335, 3666u.
— *nicotianae* in relation to *Aphelenchoides composticola* and *Ditylenchus myceliophagus*, 2077.
— — on *Agave*, 1901, 1902.
— — on *Nicotiana plumbaginifolia*, 889.
— — on sesame, 3063b.
— — on tobacco, 316, 889, 890.
— — var. *parasitica*, effect of bean exudates on, 755.
— — — —, hosts of, 2657.
— — — — in soil, 1431, 1943.
— — — —, longevity under oil, 3045.
— — — — on *Annona squamosa*, 2656.
— — — — on box, 834.
*— — — — on *Capsicum*, 2588a.
— — — — on citrus, 192, 3063b.
— — — — on *Hibiscus cannabinus*, 3456.
*— — — — on *Peperomia*, 2507.
— — — — on *Piper betle*, 1943.
— — — — ultrastructural changes during zoospore formation, 770.

[*Phytophthora*] *palmivora*, effect of leaf respiration on zoospores, 3005.
— —, light-cholesterol relationships in morphogenesis of, 1776.
— —, nutritional requirements for enzyme production by, 2402.
— — on *Achras sapota*, 2656.
— — on *Hevea* rubber, 880b, (?)2822.
— ?— on pineapple, 1931.
— —, production of α-L-arabinofuranosidase by, 3718.
— *phaseoli* on *Phaseolus lunatus*, 3273, 3274.
*— *porri* on onion, 1b, *381.
Phytotoxins and toxaemia, review of, 2391.
Picea, see Spruce.
Piesma quadratum transmitting beet leaf curl virus, 395f.
Piezodorus pallescens, ?relationship of, to date palm decline, 285.
*Pigeon pea (*Cajanus cajan*), fungi in India, causing wilt, 2432.
— —, *Fusarium udum* on, effect of S on sporulation, 374.
— — mosaic virus on pigeon pea in India, symptoms and transmission by grafting, 81.
*— — yellows, ?virus, in India, 2432.
Pimento (*Pimenta officinalis*), cucumber mosaic virus on, genetics of resistance to, 1745h.
—, *Puccinia psidii* on, in Jamaica, 2958b.
—, tobacco mosaic virus on, genetics of resistance to, 1745h.
Pine (*Pinus*), *Arceuthobium americanum* on, *Glomerella cingulata* parasitizing in Canada, 337.
*—, *Armillaria mellea* on, in Jamaica, 2958a; antagonism of fungi to, 90.
*—, *Bifusella linearis* on, in U.S.A., causing needle cast, 2867.
—, *Boletus granulatus* on, forming mycorrhiza, 2603.
—, — *luteus* on, forming mycorrhiza, 424.
—, *Botryosphaeria ribis* on, in E. Africa, 344.
—, *Caliciopsis pinea* on, in France, 345, 3238; mode of entry, 345.
—, *Cenangium ferruginosum* on, *Thecodiplosis brachyatera* associated with, 346.
—, *Ceratocystis montii* on, inhibition of, by extracts from, 3252.
*—, *Cercospora pini-densiflora* on, in Rhodesia, 2359a.
—, *Cladosporium* in rhizosphere of, 2284.
—, *Cochliobolus geniculatus* on, in E. Africa, causing damping-off, 2863b.
—, *Coleosporium asterum* on, in U.S.A., life cycle and development of, 3235.
—, — *paederiae* on, life history and morphology of, 2286, 3236.
—, *Colletotrichum* on, in N.Z., causing terminal crook disease, 919b.
—, *Coniophora puteana* on, biology of, 1702.
—, *Corticium solani* on, in E. Africa, 2863a, b; effect of soil mycoflora on, 1318; inhibition of, by mycorrhizal basidiomycetes, 1411; virulence of, 2863b.
—, ?*Corynebacterium* sp. on, in W. Mediterranean area, 3601.
—, *Cronartium* on, in Mexico and U.S.A., aecial states of, 1692.
—, — *appalachianum* on, 1986.
—, — *comandrae* on, in U.S.A., determining age of, 2872; effect of, on, 1986.
[Pine, *Cronartium*] *comptoniae* on, in Canada, 1315; effect of antibiotics on, 3233; histology of, 1986.
—, — *conigenum* on, in British Honduras, 1982; geographical distribution of, 2288; previously named *Peridermium mexicanum*, 2288.
—, — *flaccidum* on, in Europe, cytology and morphology of aeciospores, 3598.
—, — *fusiforme* on, in U.S.A., 2869; control, 3599; distance of needle infection from stem and gall development, 3600; factors affecting, 2869; pathogenicity of basidiospores, 2870; physiochemical basis of gall formation in, 3234; resistance to, 1987.
—, — *occidentale* on, 1986.
—, — *quercuum* on, 2290; in Canada, now identified as *Peridermium harknessii*, 2868; U.S.A., distinction from *P. harknessii*, 3232; effect of antibiotics on, 3233.
—, — *ribicola* on, in U.S.A., 2569, *2871, 2872; U.S.S.R., 1691; control, 1690; culture of, 1323; determining age of, 2872; factors affecting, 1691, 2569; spread of, 734; *Tuberculina maxima* parasitizing, 2289.
—, *Crumenula pinicola* on, in Netherlands and abroad, review of, 2874.
—, — *sororia* on, in Netherlands and abroad, 2874; biology of, 3219c; review of, 2874.
—, *Curvularia* on, in E. Africa, causing damping-off, 2863a, b.
— damping-off in Canada, 341; E. Africa, 1983, 2863a, b; Tanzania and Uganda, 3595a, b; control, 3595a; evaluation of fungicides against, 341; factors affecting, 1983.
—, *Davisomycella ampla* on, in Canada, 2562b.
—, — *fragilis* on, in Canada, previously confused with *Lophodermium pinastri*, 347.
— dieback, *Scleroderris lagerbergii* associated with, 1324.
—, *Diplodia pinea* on, in U.S.A., 2271e, 2873.
—, *Dothistroma pini* var. *keniensis* on, in Kenya, 1984.
—, effect of captan-50W on seed germination, 2857; of H_2O_2 on seed germination, 1980; of chemicals on pollen germination, 342.
—, *Europhium* on, inhibition of, 3252.
—, *Fomes annosus* on, in Latvia, 2292; U.K., 3219; U.S.A., 3230, 3603; antagonism of *Trichoderma* spp. in soil to, 348a; duration of stump susceptibility to, 3230; effect of resin on resistance to, 3229; epiphytic growth of, 348a; factors affecting, 2291, 2292; new host of, 3603; resistance of stem sap to infection, 666; susceptibility to, 348b, 1330, 3219; technique for studying, 3229.
—, — *fomentarius* on, biology and control of, 1702.
—, — *pini* on, rate of decay in, 667.
—, frost injury to, in Canada, breeding against, 2878.
—, fungal decay of, in Canada, 924.
—, fungi on, in E. Africa, 2863a, b; bibliography of, 343; causing damping-off, 2863a, b; in litter of, 1020, 3219b.
—, *Fusarium* in rhizosphere of, 2284.
—, — on, in Chile, 3594; E. Africa, 2863a, b; control, 1319, 2293, 3594; factors affecting, 3593.
—, — *oxysporum* on, in E. Africa, 2863b;

U.S.A., decline of, 923; effect of soil mycoflora on, 1318.
[Pine, *Fusarium*] *solani* on, in E. Africa, 2863b.
—, *Hebeloma mesophaeum* on, forming mycorrhiza, 425.
—, *Hypodermella ampla* on, defoliation caused by, 643c.
—, *Laccaria laccata* on, forming mycorrhiza, 425.
—, *Lophodermium nitens* on, comparison with *L. pinastri*, 2864.
—, — *pinastri* on, in *Canada, 2562b; Czechoslovakia, 2865; Germany, 922; U.S.A., 2590h; U.S.S.R., 1314, 2866; comparison with *L. nitens*, 2864; control, 669, 2865, 2866; development of, 2590h; factors affecting, 922; inoculation with, 2294.
—, *Macrophomina phaseoli* on, effect of soil disinfection on, 355.
—, *Melampsora populnea* on, effect of extracts on growth of, 3231.
—, mycorrhiza of, 3708; in Italy, 3709; U.S.S.R., 1001; development of, 3711; effect of phytoactin on, 1320; of simazine on, 749; electron microscopy of, 1002; factors affecting, 2991, 2992; morphology of, 3711; types of, 2390.
—, *Naemocyclus niveus* on, spore discharge of, 349.
— needle blight in Canada, ozone not causing, 926; U.S.A., air pollution causing, 925.
—, — chlorosis in Germany, associated with iron deficiency, 2298.
— '— curl' not associated with soil moisture, 670.
—, *Penicillium* in rhizosphere of, 2284.
—, *Peniophora gigantea* on, in U.S.A., inhibition of *Fomes annosus* by, 3230.
—, *Peridermium cerebrum* on, in Mexico and U.S.A., differentiation from *P. fusiforme* and *P. harknessii*, 1692.
—, — *filamentosum* on, races of, 2287.
—, — *fusiforme* on, in Mexico and U.S.A., differentiation from *P. cerebrum*, 1692.
—, — *harknessii* on, in Canada, 1315, 2562a, 2868, 3597; Mexico, 1692; New Zealand, 1693; U.S.A., 1692, 3232; control, 2868; differentiation from *Cronartium quercuum*, 2562a, 3232; from *P. cerebrum*, 1692; identification of, 3597; susceptibility to, 1693.
—, — *stalactiforme* on, 1986, 2287.
—, *Pestalotia* on, in Malaysia, 3239.
—, *Phacidium abietis* on, 338.
—, — *infestans* on, in U.S.S.R., 1314.
—, pine-oak rust on, in U.S.A., differentiation from *Cronartium fusiforme* and *C. quercuum*, 2290.
—, *Polyporus circinatus* on, in Germany and Poland, incidence of, 2295.
—, — *tomentosus* on, in Germany, 3602.
—, *Pythium acanthicum* on, in E. Africa, 2863b.
—, — *afertile* on, effect of seed exudates on, 3596.
—, *Rhizina undulata* on, in *Rhodesia, 3a; heat from fires and ascospore germination, 350b.
—, *Rhizoctonia* on, control, 1319.
— root rots in U.S.S.R., 673.
*—, *Scirrhia pini* on, in Canada, *643d; E. Africa, 920; England, 3219; *France, 352; New Zealand, 351, 919c, 3237; control, 351, 919c, 920; distribution of, 351; *Dothistroma pini* conidial state of, 352; effect of shade on incidence of, 668; of, on tree size, 919c; host list for, 3237; infection of, 919c, 1985; spec. react. to, 351, 919c, 1321.
[Pine, *Scirrhia pini*] var. *linearis* on, 1984.
—, *Scleroderris lagerbergii* on, in *Austria, 2877; Canada, 643c, 2878; Germany, 2296; U.S.A., 1694; biology of, 2875; breeding against, 2878; causing dieback, 1324, 2876, 2877; factors affecting, 1324, 2296; sporulation of, 2879; infection by, 643c; susceptibility to, 1694, 2876.
*—, *Sclerophoma pithyophila* on, in Canada, 2562f.
—, *Thelephora terrestris* on, forming mycorrhiza, 425.
—, *Trichoderma viride* on, in U.S.A., 3230.
—, *Tuber albidum* on, forming mycorrhiza, in Italy, 3709.
—, — *maculatum* on, forming mycorrhiza, 3708.
—, *Veluticeps berkeleyi* on, in C. America, Cuba, and U.S.A., 2297; *V. fusca* synonym of, 2297.
—, *Verticicladiella wageneri* on, effect of temp. on, 353; pathogenicity of, 354.
Pineapple (*Ananas comosus*), *Ceratocystis paradoxa* on, control, 3513.
—, *Colletotrichum* on, in India, 2787.
*—, *Penicillium funiculosum* on, in Hawaii, 1631.
—, *Phytophthora ?palmivora* on, in Ivory Coast, 1931.
Pinus, see Pine.
Piper betle, *Phytophthora nicotianae* var. *parasitica* on, survival of, in soil, 1943.
— *nigrum*, see Pepper, black.
Piricularia, see *Pyricularia*.
Pisum sativum, see Pea.
Plant diseases in Angola, 3400; Canada, 3667; Czechoslovakia, 1787; Finland, 1378; Guinea, 1750; Hawaii, 1067; Hungary, 393c, 1404; Iran, 2114, 3063; Iraq, 3062; Jamaica, 1066; Madagascar, 3065; Mauritius, 1065, 1806; Nepal, 1069; N. Korea, 477; Poland, 1071; Tasmania, 3399; Venezuela, 1381c, d; W. Australia, 3398; Yemeni Arab Republic, 1068; Zambia, 84; assessment of, 3308; biochemistry and physiology of, book on, 989; biological control of, 1749; control, 393c, 1396, 1397, 1398, 1399, 1404, 1806, 2116, 2430; economics of, 1374a; controlled environment in relation to research on, 986k; effect of tillage on, 2653; host-parasite relationships in, 731; insects in relation to, 2nd edition of book on, 1386; mathematical analysis of epidemics of, 1750, 2035, 2362, 3671; method for predicting, 1073; ? mycoplasmas causing, 3672; nocturnal spore dissemination in spread of, 734; relationship of centres of origin to sources of resistance to, 3068; resistance to, substances inducing, 16; toxins and, 1421.
— galls, pocket encyclopaedia of, 3313.
— immunity, classification of and review of Russian literature on, 2963.
— pathology, chronology of, book on, 2592; C.M.I. handbook on, 2971; Czechoslovak forestry bibliography of, 1679; development of, in Britain, 3670; in Denmark, 2962; field trials, problems in, 475; introductory, 3rd edition, revised, of book on, 1751; mycological techniques in, 3379; the plant pathologist and, 986a; review of 1946–66, 402;

sourcebook of laboratory exercises in, 10; techniques in, 3379.
[Plant] protection in Austria, 1759, 1760; Germany, 415, 1409, 3704; Japan, 1070; Poland, 2957; S.E. Asia and Pacific Region, 1000; U.S.S.R., 1382, 1383, 1463; approved appliances for, 415; index 1945–1966, FAO, 1748; practical treatise on, 735; problems associated with, 732.
— viruses, 4th edition of Smith's book on, 2098.
Plantago, tobacco rattle virus on, in Czechoslovakia, 1374s, 1804.
— *media*, tobacco mosaic virus ribgrass str. on, in Czechoslovakia, cell inclusions in, 1802.
Plantasol against *Pseudomonas delphinii*, 542.
Plants, Dictionary of economic, 2368.
Plantvax as soil disinfectant, 1852.
—, effect of, on *Entyloma oryzae* and *Tilletia barclayana*, 1539.
Plasmodiophora brassicae, fine structure of, in sporogenesis, 771.
— — on Brassicae, 730b, 2030.
— — on cabbage, see Cabbage.
— — on cauliflower, 937.
— — on Cruciferae, 3255, 3617.
— — on kale, 937.
— — on rape, 938.
Plasmopara halstedii on sunflower, see Sunflower.
— *viticola* on grapevine, see Grapevine.
Plastics, testing for resistance to fungi, 998.
**Pleomassaria mali* on apple, 86.
— *muriformis* on fruit, 1598.
Pleomela, Gibberella fujikuroi on, symptoms of, 1584.
Pleospora bjoerlingii on beet, see Beet.
— *herbarum*, C.M.I. description of, 1035a.
— —, distinction of *Stemphylium botryosum* f.sp. *capsicum* from, 3659.
— —, interaction of near-UV light and temp. on sporulation of, 1017.
— — on apple, 2752.
— — on ash, 325.
— — on lucerne, 1176, 1594.
— — on *Phlox*, 229.
— —, photosporogenesis in, 3723.
— *mali* on fruit, 1598.
Pleurotus gemmellari on poplar, 333.
— *ostreatus*, effect of light on growth and sporulation of, 752.
— — on timber, 1991.
Plicaria fulva on mushroom, 1741.
Plum (*Prunus domestica*), cherry chlorotic-necrotic ring spot virus str. on, hosts, properties, and transmission of, 255.
—, *Diaporthe perniciosa* on, in Sweden, 2527; epidemiology of, 1201.
—, *Dibotryon morbosum* on, germination of ascospores of, 573.
— dwarf virus, control and symptoms of, 1178.
—, effect of fluorine on, 248.
— line pattern virus, comparison of, other viruses with, 2210a, 2651, 3156.
— — — — —, hosts of, 254.
— — — — —, serology of, 2651.
—, *Nectria cinnabarina* on, in Germany (N.), 1181.
—, peach wart virus on, symptoms of, 570.
—, — yellow bud mosaic virus on, transmission of, by vectors, 571.
—, *Phyllosticta prunicola* on, symptoms of, 2766.
[Plum], *Polystigma rubrum* on, in Rumania, 393f; U.S.S.R., 2192; biology of, 2192; control, 393f, 1200, 2192, 2528; *Gloeosporium polystigmicola* parasitizing, 563; incidence of, 2192; potential infection in stromata of, 2211; spray warning for, 1916.
— pox virus can infect *Prunus cerasifera* var. *divaricata*, 1196.
— — — on apricot, 1196, 1922, *3059a.
— — — on greengage, 2357i.
— — — on peach, 1922, 2357i.
— — — on plum in Bulgaria, 2100; England, 2763; Switzerland, 1922, 2761a, b; U.S.S.R., 558, 1196; Yugoslavia, 569, 2762; comparison with other viruses in U.S.A., 2210a; control, 1178, 1922; eradication of, from Germany, 2355h; hosts of, 2761b, 2763; identification of, 2763; report on, 2760; review of, 2210b; spread of, 569; symptoms of, 1178, 2761b; transmission of, by vectors, 569, 1614, 2761a, 2762; to *Chenopodium foetidum*, 2357i; var. react. to, 2762.
— — — — +*Prunus* necrotic ring spot virus on plum, 1377l.
—, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
—, — — — — — — +plum pox virus on, 1377l.
—, *Pseudomonas syringae* on, 1530.
— 'rosette' virus in U.S.S.R., description, incidence, and symptoms of, 558.
—, *Sclerotinia fructigena* and *S. laxa* on, biology of, 1615.
—, *Stereum purpureum* on, effect of asphyxiation of roots on, 1923.
— storage disorders, factors affecting, 1005.
—, *Valsa cincta* on, control, 256, 1199, 3498; resistance induced by, 574.
— virus diseases in Hungary, 1743f; testing for, 246.
**Plumeria acutifolia, Glomerella cingulata* on, 548.
Pluteus, effect of, on coniferous litter microflora, 2282.
PMA against *Corynebacterium michiganense* on tomato, 2843; *Pyricularia oryzae*, 1541; *Tilletia foetida* on wheat, 1839; *Ustilago avenae* on oats, 1511; *Xanthomonas vesicatoria* on tomato, 2843.
— versus duter 50–W, 1541; PCBA, 2160a.
— in combination against *Pyricularia oryzae*, 2160a.
PMC against *Botrytis fabae* on broad bean, 419; *Sporidesmium sicynum* on fig, 1213; *Streptomyces scabies* on potato, 1377g; *Venturia inaequalis*, 250, 3491; *Xanthomonas phaseoli* on bean, 1377h.
— injury to apple, 250.
— in combination against *Colletotrichum* on pine, 919b.
Poa annua, Arabis mosaic virus on, transmission of, 3508.
— — virus in Czechoslovakia, symptoms of, and transmission, by vectors, 2510.
*— —, wheat mosaic virus on, in Japan, *Polymyxa graminis* associated with, 1822.
— *pratensis*, barley yellow dwarf virus on, in Denmark, 730b.
— —, *Claviceps purpurea* on, in Germany, 1170; control, 2509; incidence of, 1170.
— —, *Erysiphe graminis* on, control, 2509.
— —, *Helminthosporium vagans* on, in Germany (E.), 2743; U.S.A., 235; control and

factors affecting, 3479; inflorescence infection by, 235.
[*Poa pratensis*] *Puccinia striiformis* and *Septoria macropoda* var. *septulata* on, control, 2509.
— —, *Urocystis agropyri* on, control, 2509; symptoms of, identical with *Ustilago striiformis*, 3477.
— —, *Ustilago striiformis* on, control, 2509, 3478; subterranean sporulation by, 2184; symptoms of, identical with *Urocystis agropyri*, 3477.
Podosphaera leucotricha in the air, 2032o, 2355d.
— — on apple, see Apple.
— *oxyacanthae* var. *tridactyla* on damson, 1809.
— — on Rosaceae, 3731b.
Pollaccia radiosa imperfect state of *Venturia tremulae*, 1309.
Polyantibiotic against *Pythium ultimum* on parsley, 714.
Polybarint against *Taphrina deformans* on peach, 2529.
Polycarbacide against *Elsinoe ampelina* on grapevine, 1634.
Polycarbacin against *Cylindrosporium maculans* on mulberry, 1630; *Elsinoe ampelina* on grapevine, 3171; *Phytophthora infestans* on potato, 1396; on tomato, 1677; *Plasmopara viticola*, 1396; *Venturia inaequalis*, 1396.
Polyethylene polysulphide, use of, on coffee, 2960d.
Polygonum aviculare, *P. pennsylvanicum*, and *P. persicaria*, *Cercospora beticola* on, 2314.
Polymycin against *Pseudomonas glycinea* and *Xanthomonas phaseoli* var. *sojense* on soybean, 3637.
Polymyxa betae on beet, 949, 1345b.
— *graminis* associated with wheat mosaic virus on *Poa annua*, 1822.
— —, differentiation of *P. betae* on beet from, 1345b.
— — transmitting wheat (soil-borne) mosaic virus, 101, 1080.
Polyporaceae in Denmark, Finland, Norway, and Sweden, 1438; U.S.S.R., 2416; description of and key to, 1438.
— on apricot, 1205.
—, production of antibiotics by, 3337.
Polyporus adustus on timber, 2891.
— — on wood pulp, 936.
— *anceps* on timber, 2271b.
— *betulinus* on birch, 3248.
— *brumalis*, inhibition of, by KCN, 36.
— *circinatus* on pine, 2295.
— *gilvus* on *Casuarina equisetifolia*, 3580.
— *glomeratus* on *Acer saccharum*, 649, 1973, 2566.
— *hirsutus*, effect of apricot apoplexy tannins on growth of, 1205.
*— *hispidus* on ornamentals, 1147.
— — on trees, 1994.
— *megaloporus* on timber, 1331.
— *populinus*, production of antiblastic substance by, 2403.
— *squamosus* on trees, 1994.
— *sulphureus* on timber, 1993.
— — on trees, 1994.
— *tomentosus* on pine, 3602.
— — on spruce, 928, 1315, 3244.
— — var. *circinatus* on spruce, 1315.
Polyram against *Plasmopara viticola* on grapevine, 2791; *Venturia inaequalis*, 4a.
[Polyram] versus cyprex, 1686; Du-Ter, 1686.
— C against *Helminthosporium heveae* on *Hevea* rubber, 1256.
— M against *Helminthosporium heveae* on *Hevea* rubber, 1256; *Phytophthora infestans* on potato, 1236, 2961.
— combi against *Alternaria tenuis* on tomato, 1294; *Botrytis cinerea* on grapevine, 3971; on strawberry, 3164; *Fusarium* on *Dieffenbachia*, 3459d; *Phytophthora infestans* on potato, 2240.
— turf fungicide against *Sclerotinia homoeocarpa* on *Agrostis palustris* and *A. tenuis*, 2744.
— — — injury to turf, 2744.
Polyspora lini on flax, see Flax.
Polystictus abietinus, distinction between forms of, 50.
— *cinnabarinus* on stone fruit, 1613.
— *hirsutus* on trees, 1994.
— *sanguineus* on timber, 2285.
— *versicolor*, effect of apricot apoplexy tannins on growth of, 1205.
— — on stone fruit, 1613.
— — on timber, see Timber.
— — on trees, 1994.
— — on wood pulp, 936.
Polystigma rubrum on almond, 576.
— — on plum, see Plum.
Pomarsol 'zet' against *Plasmodiophora brassicae* on cabbage, 2307.
— Z forte against *Polystigma rubrum* on plum, 2528.
Pome fruit diseases in Germany, causing bark and wood injury, 848.
— —, *Pseudomonas syringae* on, in U.S.S.R., 2209.
— —, *Stereum purpureum* on, 396.
— — virus diseases, development and symptoms of, 2747.
Poncirus trifoliata, *Thielaviopsis basicola* on, symptoms of, 1884.
*Poplar (*Populus*) [see also Aspen], *Alternaria tenuis* on, in Portugal, 2414.
—, *Aplanobacter populi* on, in France, 3227; pathogenicity of, 2854; review of, by Int. Poplar Commission Versailles, 334; spread of, 3227; symptoms of, 2854; transmission of, by vectors, 3227; var. react. to, 661, 3227.
—, *Cladosporium herbarum* on, in Pakistan, 333.
—, *Chromobacterium* on, in Czechoslovakia, 2854.
—, *Cytosporina acharii* on, nematode parasitizing, 1393.
—, *Diplodia tumefaciens* on, in Canada, 2562d.
—, *Erwinia cancerogena* on, in Czechoslovakia, pathogenicity and symptoms of, 2854.
—, — *multivora* on, in U.S.S.R., aetiology of, 1311.
*—, *Fusarium solani* on, in U.S.A., (Iowa), 913.
—, *Hypomyces solani* on, pathogenicity of, 332.
—, *Marssonina* on, control, 3302c.
—, — *brunnea* on, in Hungary, 3585; Italy, 2853; *U.K., 3219.
—, — *populi* on, genetics of, 2031g.
—, — — - *nigrae* on, in U.K., 3219.
—, *Melampsora allii-populina* on, distinction of from *M. larici-populina*, 912.
—, — *larici-populina* on, 912; breeding against, 660; distinction of, from *M. allii-populina*, 912; temp. and susceptibility to, 1689.
—, — *medusae* on, in U.S.A., 1310.

[Poplar, *Melampsora*] *populnea* on, in Pakistan, 333.
— mosaic virus on poplar in Canada, similarity of, to European str., 2567; effect of, on growth, 3219d.
—, *Phoma herbarum* on, in Pakistan, 333.
—, *Phomopsis macrospora* on, pathogenicity of, 332.
—, *Phyllosticta brunnea* on, in Canada, 2562b.
—, *Pleurotus gemmellari* on, in Pakistan, 333.
—, *Pseudomonas syringae* on, in Czechoslovakia, virulence of, 2854.
—, *Torula herbarum* on, in Pakistan, 333.
—, *Uncinula salicis* on, in Canada, 2562d, *2562e.
—, *Valsa* on, 3303.
—, — *sordida* on, fungi associated with, 915; pathogenicity of, 332.
—, *Venturia tremulae* on, biology of, 1309; *Pollaccia radiosa* imperfect state of, 1309.
Populus grandidentata, see Aspen.
— *tremula* and *P. tremuloides*, see Aspen.
Poria albidofusca on forest trees, 323.
— — on hornbeam and spruce, 927.
— *carbonica* on *Pseudotsuga menziesii*, 2570.
— — on timber, 1334.
— *hypobrunnea* on tea, 3203.
— *hypolateritia* on tea, 620a, 1268, 1962.
— *monticola* on timber, 681, 682, 3606.
— *punctata* on trees, 1994.
— *vaporaria* on timber, 1332.
— *weirii* on *Pseudotsuga menziesii*, 672.
Porosporae, toxicity of F 427 to, 739.
Portulaca oleracea, *Polymyxa* on, morphological characters of, 1345a.
Potassium deficiency, effect of, on *Botrytis cinerea* on pea, 1348; on maize mosaic virus on sorghum, 1113f; on maize stalk rot, 2152; on susceptibility of *Capsicum* to *Xanthomonas vesicatoria* and peach to *X. pruni*, 3318; on *Ustilago scitaminea* on sugarcane, 3202.
— — in oil palm, 596.
— permanganate against *Macrophomina phaseoli* on *Colocasia esculenta*, 2953; *Phytophthora capsici* on *Capsicum*, 2949; *Uncinula necator* on grapevine, 397g; as seed treatment for tomato, 631.
— persulphate, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by, 1801.
—, see also Fertilizers.
Potato (*Solanum tuberosum*) acropetal necrosis virus, see Potato virus Y str.
—, *Alternaria solani* on, in Venezuela, 1381j; control, 597c, 1381j, 3186; intraspecific heterogeneity of, 3544; var. react. to, 3186.
—, — *tenuis* on, in India, 2812; Venezuela, 297; germination of, 297; strs. of, 2812.
— Andean latent virus, eggplant mosaic virus from Trinidad related to, 3301n.
— aucuba mosaic virus on potato in Yugoslavia, study on, 1642.
— black spot, relationship between composition of tubers and, 1957.
—, *Botrytis cinerea* on, factors affecting, 3191
— bouquet virus on potato in Yugoslavia, rarity of, 1642.
—, α-chaconine and α-solanine in peel of, 3193.
— chilling injury, symptoms of, 1255.
—, *Cochliobolus carbonum* on, effect of, on steroid alkaloid production, 875.
— coiled sprout, *Verticillium nubilum* associated with, 3664d.
[Potato], *Colletotrichum coccodes* on, interaction with, 93.
—, *Corticium solani* on, adaptation of, to fungicides, 420; control, 1376b, d, 1648, 2242; effect of soil disinfection on, 613; factors affecting, 455, 3301e; incidence of, 3301e; interaction of, with other pathogens, 1248; leaflet Min. Agric. & Fish. on, 2242; resistance of, to quintozene, 3015; specialization of, 455.
—, *Corynebacterium sepedonicum* on, in Denmark, 730a; Switzerland, imported into, 1652b; serodiagnostic test for, 3195; symptoms of, 1652b.
— diseases, 1641, 3306; in Poland, 2956; aircraft spraying against, 597d; key to, 1946; method for forecasting losses from, by computer, 1746a.
—, effect of organo mercury residues on tubers of, 1655.
—, *Erwinia* on, CO_2 accumulation associated with, 3196.
—, — *aroideae* on, in Malawi, 1747b; maceration by, 3666j; survival of, in soil, 3301f.
—, — *atroseptica* on, in Mozambique, imported from Ireland and Scotland, 1254; control, 877; factors affecting, 877, 1254; incidence of, 877; method for testing resistance to, 1956; survival of, in soil, 3301f; symptoms of, 877.
—, — *carotovora* on, 3315; in Germany, 2029; survival of, in soil, 3301f.
—, fungi on seed tubers of, 1375y, 2584j.
—, *Fusarium caeruleum* on, in Malawi, 1747b; control, 3664b; factors affecting, 611; phenol metabolism of, 1954; susceptibility to, 1243; var. react. to, 3184.
—, — *sambucinum* on, var. react. to, 3184.
—, — *solani* on, interaction of soil microflora with, 2816; toxicity of extracts from necrotic layer to, 2237.
*—, *Gilmaniella humicola* on, in India, 1649.
— 'gothic' virus on potato in U.S.S.R., distribution of, 598.
—, *Helminthosporium solani* on, C.M.I. description of, 3030; sources of inoculum for, 1251.
— internal black spot, histology of, 3197.
— — rust spot, 878; in Germany, 614.
— leaf roll virus on *Physalis floridana*, 601.
— — — — — on potato, 3300d; in U.S.S.R., 404, 598; Yugoslavia, 1642; carbohydrate accumulation in leaves of, 1951; detection of, 404, 597b, 602, 1224a, 1225, 3538; distribution of, 598; effect of summer planting on, 2235; evaluation of resistance to, 601; incidence of, 404; P disturbances associated with, 3539; properties and purification of, from vectors, 287; respiration in, 873; transmission of, by vectors, 2235; var. react. to, 2235, 2543, 3182.
—, lucerne mosaic virus on, in Yugoslavia, 1642.
—, *Macrophomina phaseoli* can infect, 196.
— mop-top virus on potato, spread, symptoms, and vector of, 3301k; var. react. to, 3540.
— mosaic, var. react. to, 2543.
—, *Mycosphaerella ligulicola* on, effect of leaf washings on, 1905.
—, *Oospora pustulans* on, in U.S.S.R., 1249; control, 1249; effect of bulk storage on, 1250; of lifting and storage on, 1375z;

factors affecting, 1249, 3664c, f; interaction of, with other pathogens, 1248.
[Potato], *Phoma* on, var. react. to, 3184.
—, — *eupyrena* on, 3301d.
—, — *exigua* on, leaflet Min. Agric. & Fish. on, 3545.
—, — — ff.sp *exigua* and *foveata* on, in Scotland, 3546a, b; effect of haulm destruction on, 3546a; of handling and storage on, 3546b.
—, — — var. *foveata* on, 1245, 1442; sources of inoculum for, 3301d.
—, — *foveata* on, control, 3664b; factors affecting, 1244; *P. exigua* var. *foveata* proposed for, 1245; restriction to host and spread of, 1376a.
—, — *solanicola* on, control, 1376b.
—, — *tuberosa* on, in U.S.S.R., 1246; control, 1247.
—, *Phomopsis tuberivora* on, in N.S.W., 2032c.
—, *Phytophthora cryptogea* on, in W. Australia, 2550.
—, — *erythroseptica* on, in Iran, 3063a; W. Australia, 2550; disruption of lysosome-like particles by, 3717.
—, — *infestans* on, 2584j, 3306, 3543; in Belgium, 293, 2586a; Colombia and Ecuador, 1234; Estonia, 608; Germany, 2029; Greece, 876; India, 2240; Rhodesia, 3e; Scotland, 3541; U.S.S.R., 404; Venezuela, 1381j; aerial photography of, 392d; apparatus for forecasting, 2809; for inoculating, 296; biology of, 1743s; biotypes of, 1647; control, 3e, 404, 597c, e, 607, 1235a, b, c, 1236, 1376d, 1381j, 1396, 1397, 1398, 1743s, 2240, 2241, 2383, 2548, 2961, 3542; determination of critical injury threshold of, 2548; development of, 608; effect of fungicide residues on, 597e; of hypoxanthine on spore germination, 2549; of light on wound infection, 394b; of nutrition on susceptibility to, 393a; of stickers on, 3185; of, on fluorescence in cells of, 4c; on steroid alkaloid production, 875; factors affecting, 876, 1238, 2241, 3612; forecasting outbreaks of, 4e, 294, 1808, 2586a; genetics of, 597f, 606, 1241, 1242, 2239, 3300e; infection of leaves by, 2811; isolation of antifungal substance from 1407; phenol metabolism in, 609, 1240; physiologic races of, 2238; potato vein yellowing virus as protectant against, 1234; reduction of sporulation in, by mechanical measures, 1239; resistance to, 1743s; review of, 295; severity of, 2029; sources of infection of, 3541; sporulation of, 293; spread of, in plant, 1952; technique for spraying against, 1235a; toxicity of extracts from necrotic layer to, 2237; of fungicidal aerosols to, 1237; var. react. to, 610, 1952.
—, pipecolic acid content in relation to disease resistance, 2158.
—, practical and scientific guide, 1641.
—, *Pseudomonas* on, effect of cycloheximide on resistance to, 2247.
—, — *solanacearum* on, 1955; in Kenya, 2b, 2959a; Queensland, 280; alternative hosts of, 2b, 2358b, 2959a; biotypes of, 280, 2358b; concept of vertical and horizontal resistance in, 3194; control, 2b; survival of, 2959a.
—, *Puccinia pittieriana* on, in Colombia, 3189.
— purple top wilt, review of, 600.
—, *Pythium aphanidermatum* on, inhibition of, by phenolic compound from carrot, 382.
[Potato], *Rhizoctonia* on, in Iran, 3063a; U.S.S.R., diagnosis of, 2243.
— rugose mosaic virus on potato in U.S.S.R., distribution of, 598.
— seed material, propagation beds for, 2543.
— spindle tuber virus on potato, detection of, 1232; hosts of, 3395; infectious nucleic acid from host tissues of, 2808; physical properties of, 1232; symptoms and transmission of, 3395.
— — — — on tomato, 1232.
—, *Spongospora subterranea* on, in Germany, 2029; control, 1376d; incidence of, 2029; susceptibility to, 1650.
—, stolbur virus on, in Bulgaria, 2100; Rumania, 288; Yugoslavia, 1642; factors affecting, 288; technique for preparing antiserum against, 2427.
— storage disorders, 1747b.
— streak, potato viruses A+S causing, 2546.
—, *Streptomyces* on, in U.S.A., differentiation of, from *S. scabies*, 597g; factors affecting, 1252; growth and inhibition of, 1252; isolation of, 597g; serology of, 597h, 1654; survival of, 1252; var. react. to, 1252.
—, — *scabies* on, in Germany, E., 2029; Rumania, 397d; antagonism of soil bacteria to, 2553; comparison between seed-borne and soil-borne incidence of, 2584k; control, 1376d, 1377g, 2552; differentiation of *S.* on potato in U.S.A. from, 597g; effect of Fe hydroxide in soil on, 394b; of organic soil amendments on, 2818; of soil bacteria and substrates on, 2553; of soil moisture on, 3192; factors affecting, 1653, 3664a; leaflet Min. Agric. & Fish. on, 2817; strs. of, 397d; use of 'little tubers' for testing fungicides against, 2551; var. react. to, 1253, 3184.
—, sulphur dioxide injury to, in Czechoslovakia, 298.
—, *Synchytrium endobioticum* on, in Switzerland, 1652a; U.S.S.R., 612; aetiology of, 1652a; control, 612, 1652a; differences in isolates of one race of, 1651; effect of soil type on, 3187; geographical distribution of, 2814; method for predicting, 1073; leaflet Min. Agric. & Fish. on, 2813; symptoms of, 1652a; var. react. to, 1652a, 3188.
—, tar vapour injury to, 1072.
—, tests for determining health of seed, 1643.
—, tobacco mosaic virus on, 3300d.
—, — rattle virus on, 394e; in Yugoslavia, 1642; effect of crop rotation on density of vectors of, 2234a; of preceding crops on, 2234b; rarity of, 1642.
*—, — veinal necrosis virus on, in Rhodesia, 2359b.
—, toxicity and tolerable residues of chloride products and triphenyltin acetate in, 2042.
— tuber diseases, importance of, 1375x.
— vein yellowing virus in Colombia and Ecuador, 1234.
—, *Verticillium* on, ?effect of soil disinfection on, 613; susceptibility to, 478.
—, — *alboatrum* on, (?)in Iran, 3063d; *Malawi, 1747d; distinction of symptoms induced by, from natural senescence, 2246; effect of soil temp. on, 978h; of, on leaf area development, 2245; factors affecting, 2244, 2815; genetics of, 1953; penetration by and transmission of, 2244; var. react. to, 3184; virulence of, 2245.
—, — *dahliae* on, distinction of symptoms

induced by, from natural senescence, 2246; effect on leaf area development, 2245.
[Potato, *Verticillium*] *lateritium* non-pathogenic to, 2246.
—, — *nigrescens* on, 2246; effect of soil temp. on, 978h.
—, — *nubilum* on, 2246; association of with coiled sprouts, 3664d.
—, — *tricorpus* non-pathogenic to, 2246.
— virus diseases in Bulgaria, 2100; Germany, 395a, 2637; Turkey, 1796; Venezuela, 394f; Yugoslavia, 1642; breeding against, 599; causing degeneration, 599; control, 64; determination of, 1230; factors affecting, 394f, 1947, 2233; incidence of, 2584e; rapid method for diagnosis of, 3538; review of work on, 2637; revised leaflet on, 2805; separation of, 1230; spread of, 2584e; transmission of, by grafting, 286; by vectors, 394f, 404, 1796, 1947.
— — A on potato in Colombia, 2647; U.S.S.R., 404; Yugoslavia, 1642; diagnosis of, 404, 1231; hosts of, 1455; serology of, 2647; symptoms of, 2546; technique for testing, 1224a.
— viruses A+X on potato, causing streak, 2546.
— virus B on potato, var. react. to, 3184.
— — M on potato, 3300d; in U.S.S.R., 404; Yugoslavia, 1642; conc. of in potatoes and tomatoes, 395e; diagnosis and incidence of, 404; serology of, 397a, 1048; transmission of, by vectors, 394e.
— — — on tomato, 395e.
— — S on potato, 2546, 3300d; in Rumania, 605; U.S.S.R., 404; Yugoslavia, 1642; comparison of methods for detection of, 2544; diagnosis, 404; effect of heat treatment on, 401g; eradication of, 1950; genetics of, 604; identification of, 605; incidence of, 404; inheritance of resistance in, 3183; isolation of, 3533; production of virus-free seed tubers of, 3535; serological detection of, 397a, 874, 1374r; tests for resistance to, 604; transmission of, by vectors, 394e; var. react. to, 603, 604, 605.
— — — on tobacco, 2544.
— — X on *Gomphrena globosa*, 778, 2254.
— — — on *Nicotiana glutinosa*, 78.
— — — on potato, 1950, 3300d; in Brazil, 290; Taiwan, 1226; U.S.S.R., 404; Yugoslavia, 1642; carbohydrate distribution in plants and resistance to, 2806; comparison of methods for detection of, 2544; diagnosis of, 404, 597a, 1457; effect of blue light on, 2357f; of heat treatment on, 401g; of removal of leaves and tops on translocation of, 1228; of summer planting on, 2235; incidence of, 404; inhibitors from leaf sap of, 3534; inhibitory activity of sap to, 1227; maintenance of virus-free plants, 1226a; production of virus-free seed tubers, 3535; serology of, 289, 397a, 2545, 2643; symptoms of, 2546; transmission of mechanically, 2235; tuber indexing for, 1226b; var. react. to, 290, 2235, 3184.
— — — on tobacco, 78, 2113, 2641, 2642.
— — — on tomato, 2108.
— — — str. G on *Chenopodium*, 3536.
— — — ring spot str., inhibition of by *Aspergillus niger* and plant extracts, 470b.
— — — — — — — on *Gomphrena globosa*, 470a.
— — — +tobacco mosaic virus on tomato, 630, 1290, 2108.
[Potato virus X] +potato virus Y on potato in Brazil, 290.
— — Y on *Capsicum*, 2648.
— — — on *Chenopodium*, 3536.
— — — on potato in Austria, imported, 291; Brazil, 290; Rumania, 1948; U.S.S.R., 404, 1645; Yugoslavia, 1642; anomalous strs. of, 2807; characteristics of strs. of, 1645; detection methods for, 2544; diagnosis of, 291, 404, 1224a, 1231, 2236, 3538; effect of planting method on, 2235; factors affecting, 1949; hosts of, 1455, 2807; incidence of, 404; indicators for, 1744d, 2647; physical properties of, 1230, 2807; serological demonstration of, 1644; study on strs. of, 1948; symptoms of, 2546; transmission of, 2235; var. react. to, 290, 2235, 2543, 3182; virulence of, 2807.
— — — on *Solanum*, 3537.
— — — on tobacco, see Tobacco.
— — — str. Y^R on potato in Yugoslavia, 1642.
— — Y^N on potato, effect of removal of leaves and tops on translocation of, 1228; infection of, 1229.
— witches' broom virus on potato, structures in tissues infected by, 657.
Potebniamyces balsamicola on *Abies lasiocarpa*, 2562f.
Pratylenchus associated with cherry rasp leaf disease, 3502.
— *brachyurus*, effect of, on *Pseudomonas solanacearum* on tomato, 3577.
— *penetrans* in relation to *Verticillium dahliae* on elm and maple, 2276.
Primafresh W5709 against *Guignardia citricarpa* on orange, 1127.
**Priotropis*, *Helicobasidium compactum* on, in India, 3203.
Privet (*Ligustrum*) virus on privet in Denmark, resembling raspberry ring spot virus, 730d.
Proceedings, see Conferences.
**Prodenia litura*, *Beauveria* on, in India, 1392.
Propazine as soil disinfectant, 3093.
—, effect of, on maize dwarf mosaic virus, 3093.
Propineb against *Bremia lactucae* on lettuce, 1375s; *Peronospora destructor* on onion, 18; *P. parasitica* on cabbage, 1375s, 3616; on cauliflower, 1375t; *P. tabacina*, 625.
Protomyces macrosporus on coriander, 2430.
Prune (*Prunus domestica*) dwarf virus, hosts of and *Prunus* necrotic ring spot virus not related to, 254.
— — — on apricot, 1618.
— — — on cherry, 2212, 2355g, 2530.
— — — on *Prunus*, 2032p.
— — —, serology of, 1194.
Prunus, apple latent virus on, in N.S.W., 2032p.
—, cucumber mosaic virus Y str. on, 3055.
— necrotic ring spot virus, differentiation of from cherry Lambert mottle virus, 2216; prune dwarf virus, 254; rose mosaic virus, 843.
— — — — —, hosts of, 254, 568.
— — — — —, resemblance of *Dahlia* virus 4 to, 3901; plum pox virus to, 2210a.
— — — — — on cherry, see Cherry.
— — — — — on cucumber, 1193.
— — — — — on hop, 2355j.
— — — — — on peach, 2212.
— — — — — on rose, 401b.
— — — — +plum pox viruses on plum 1377l.
— — — — —, serology of, 568, 1194.

[*Prunus*], peach yellows virus on, symptomless carriers of and sources of infection for, 852.
—, prune dwarf virus on, in N.S.W., 2032p.
— virus diseases, factors affecting graft transmission of, 1192.
— *amygdalus*, see Almond.
— *armeniaca*, see Apricot.
— *avium*, see Cherry.
— *cerasifera*, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
— — var. *divaricata*, plum pox virus can infect, 1196.
— — — —, *Pseudolachnea elegans* on, in U.S.S.R., 1179.
— — — — —, *Venturia cerasi* on, in Rumania, hosts of, 577.
— *cerasus*, see Cherry.
— *domestica*, see Prune and Plum.
— — var. *italica*, see Greengage.
— *insititia*, see Damson.
— *laurocerasus*, see Cherry, Laurel.
— *mahaleb*, *Prunus* necrotic ring spot virus on, serological demonstration of, 568.
— *persica*, see Nectarine, Peach.
— *serotina*, *Dibotryon morbosum* on, germination of ascospores of, 573.
— —, use of to separate cherry Lambert mottle virus from *Prunus* ringspot virus, 2216.
— *virginiana*, apricot xylem aberration can infect, 851.
Psammotettix striatus in relation to Gramineae virus diseases, 232.
— — transmitting wheat mosaic virus, 486.
Pseudolachnea elegans in U.S.S.R., hosts of, 1179.
Pseudomonas alboprecipitans on maize, 3437.
— *andropogonis*, effect of antibiotic substances of *Trichoderma kongingii* and *T. viride* on, 1405.
*— — on *Euchlaena mexicana*, 1171.
— — on maize, 1171, 3437.
— — on Sudan grass, 1171.
— *angulata* on tobacco, 2834.
— *aptata* on beet, 1711.
*— *azadirachtae* on *Azadirachta indica*, 326.
— *cannabina* on hemp, 1900.
— *caryophylli* on carnation, 1583, *2497, 3129.
— *cerasi* on cherry, 857.
— *coronafaciens* on oats, 145.
— *delphinii* on *Delphinium*, 542.
— *fluorescens*, effect of antibiotic substances of *Trichoderma* on, 1405.
— — on tobacco, 1286, 1744c.
— *glycinea* on soybean, 703, 3636, 3637.
— *lachrymans* on cucumber, 996, 1369, 2029.
— — on *Cucumis*, 2940.
— *lapsa* on maize, 162, 411, 1113c.
— *lupini* on lupin, 846.
— *maculicola* on Brussels sprouts, 2585c.
— *marginalis* on hyacinth, 1374o.
— — on (?) tomato, 1746b.
— — +*Penicillium cyclopium* on hyacinth, 1374o.
— *mors-prunorum* on cherry, see Cherry.
— — on pear, 2208.
— —, *P. syringae* on pear distinct from, 1611.
— — cherry str. on cherry, 2355a.
— *panici*, *P. setariae* not synonym of, 2746.
— *phaseolicola* in soil, 3018.
— — on bean, see Bean.
— —, serological relationship of races of, 2916.
— *pisi*, effect of antibiotic substances of *Trichoderma* on, 1405.
[*Pseudomonas*] *rubrilineans* on maize, 804.
*— *rubrisubalbicans* on sugarcane, 1747d.
— *savastanoi* on bean, 410.
— — on olive, 2536, 3322.
— (?)*schuylkilliensis* on rice kernels, 521.
— *sesami* on sesame, 869, 1942.
— *setariae*, hosts of, 2746.
— *solanacearum*, hosts of, 2594, 3306.
*— — on banana, *1933, 2535, 3306.
— — on *Capsicum*, eggplant, and *ginger, 280.
— — on *Musa textilis*, 1933.
— — on *Physalis peruviana*, 280.
— — on potato, see Potato.
— — on *Solanum andigenum* and *S. phureja*, 1955.
— — on tobacco, 1671, 3563.
— — on tomato, see Tomato.
— — on weeds, 280, 2959a.
— — on *Zinnia*, 280.
— —, synthesis of IAA by, 736.
— (?)*straminea* on rice kernels, 521.
*— *striafaciens* on oats, 2693.
— *syringae* on bean, 2331.
— — on cherry, 2355b.
— — on citrus, 1073.
— — on cowpea, 2373.
— — on maize, 1530.
— — on peach, 261, 1203, 1617.
— — on pear, 1611, 2757, 2758.
— — on pome fruit, 2209.
— — on poplar, 2854.
*— — on raspberry, 263.
— — on stone fruit, 2209, 2747.
— — on tobacco, 1286, 1744c, 3316.
— —, production of syringomycin by, 1203.
*— — var. *capsicicola* on *Capsicum*, 2026.
— *tabaci*, toxin produced by, 1421.
— —, effect of antibiotic substances of *Trichoderma* on, 1405.
— — on bean, 394c.
— — on tobacco, see Tobacco.
— *tolaasii* on mushroom 728, 3663.
*— *tonelliana* on oleander, 1588.
— (?)*trifolii* on rice kernels, 521.
— *vignae*, effect of antibiotic substances of *Trichoderma koningii* and *T. viride* on, 1405.
— *viridiflava* on bean, 3299j.
— *xanthochlora* on lupin, 846.
Pseudoperonospora cubensis, hosts of, 969.
— — on cantaloupe, 715.
— — on cucumber, 85, 970, 2346.
— — on watermelon, 1365.
— *humuli* on hop, see Hop.
Pseudopeziza medicaginis on lucerne, 557, 1440.
— — on *Medicago*, 1168b.
— *ribis* on gooseberry, 1440.
— *tracheiphila* on grapevine, see Grapevine.
Pseudotsuga menziesii corky root disease in Canada, association of *Nectria radicicola* and nematodes with, 2881.
— —, *Dermea pseudotsugae* on, factors affecting, 671.
— —, *Diaporthe lokoyae* on, perfect state of *Phomopsis lokoyae*, 2571.
— —, *Fomes annosus* on, effect of resin on resistance to, 3229.
— —, fungi on needles of, interrelationship of aphids, and, 3240.
— —, *Fusarium* on, in Chile, 3594.
*— —, *Helicobasidium purpureum* on, in Belgium, 2586a.
— —, *Melampsora medusae* on, in Canada, 643e.

[*Pseudotsuga menziesii*], *Poria carbonica* on, inhibition of by *Scytalidium*, 2570.
— —, — *weirii* on, differences in phenolic extracts from healthy and infected roots of, 672.
— —, *Rhabdocline pseudotsugae* on, effect of phytoactin on, 1325.
— —, *Rhizina undulata* on, in Canada, pathogenicity of, 3241.
— —, *Verticicladiella wagenerii* on, in U.S.A., 2880; pathogenicity of, 354.
Psidium guajava, see Guava.
Psilocybe agrariella on cranberry, 1627.
Psylla in relation to citrus greening virus, 524.
— *piri* transmitting pear red mottle virus, 2756.
— *pyricola* associated with pear leaf drop symptom of pear decline virus, 2755.
— — transmitting pear leaf curl disease, 1191.
Pteridophyta, fungi on, in Estonia, hosts, incidence and morphology of, 2079.
Pterospermum, *Nectria pterospermi* on, accumulation of growth regulators in, 3014.
Puccinia in Colombia, 3306.
— *agropyri*, hosts of and resistance to, 96a.
— *allii* on chives, 3668c.
— *antirrhini* on *Antirrhinum*, see *Antirrhinum*.
— *arachidis* on groundnut, 1939.
— *arrhenatheri* on barberry, 2496.
— *bhutanensis* on *Pedicularis ?kingii*, 2622.
— *carthami* on safflower, 3176, 3177.
— *coronata*, nuclei of germination structures produced by uredospores of, 2630.
— — on *Aegilops*, 2439.
— — on cereals, 2440.
— — on oats, see Oats.
— — f.sp. *agrostis* on *Agrostis pilosula*, 3476.
— — — *avenae* on *Arrhenatherum elatius* and *A. erianthum*, 2512.
— — — — on *Dactylis glomerata*, 1910.
— — — *festucae* on *Festuca gigantea*, 3476.
*— *erianthi* on *Narenga porphyrocoma*, 1959.
*— — on sugarcane, 2359a.
— *flaveriae* on *Calendula*, 2732.
— *glumarum*, see *P. striiformis*.
— *graminis*, comparison of rod and slide samplers for trapping uredospores of, 3405.
— —, factors affecting differentiation and germination of uredospores of, 784.
— —, hosts of, 3404.
— — in the air, 5a, b.
— —, inhibition of germination of, by extracts from *Ustilago striiformis*, 31.
— —, metabolism of propionate by, 1769f.
— — on *Aegilops*, 2439.
— — on *Avena*, 2660.
— — on barberry, 1377a, 2496, 2962.
— — on barley, see Barley.
— — on *Bromus japonica*, 2660.
— — on *Bryophyllum*, 103.
— — on cereals, see Cereals.
— — on *Hordeum*, 2660.
— — on *Lolium multiflorum*, 1168a.
— — on maize, 1517.
— — on *Muehlenbergia hugelii*, 2660.
— — on oats, see Oats.
— — on onion, 103.
— — on rye, 2694, 3075.
— — on *Vulpia myuros*, 2660.
— — on wheat, see Wheat.
— — +*Tilletia caries* on wheat, 488.
— — f.sp. *agropyri-repentis* on *Agropyron* and *Elymus*, 96b.
[*Puccinia graminis* f.sp.] *avenae*, *Darluca filum* on, in Brazil, 1168a.
— — — — — on *Dactylis glomerata*, 1910.
— — — *secalis* on *Agropyron* and *Elymus*, 96b.
— *helianthi*, effect of light on germination of uredospores of, 978m.
— — on sunflower, See Sunflower.
— *hordei* on *Aegilops*, 2439.
— — on barley, see Barley.
*— *horiana* on *Chrysanthemum*, see *Chrysanthemum*.
— — on *C. morifolium*, 1155.
— *iridis* on *Iris*, 2366.
— *kuehnii* on sugarcane, 3065.
— *malvacearum* in Chile, 82.
*— *menthae* on *Mentha spicata*, 2032c.
— — on peppermint, 1220, 3178.
*— *pelargonii-zonalis* on *Pelargonium*, see *Pelargonium*.
— *penniseti* on *Pennisetum typhoides*, 1113m.
— *pittieriana* on potato and *Solanum*, 3189.
— *polysora* on maize, see Maize.
— — on *Tripsacum laxum*, 152b.
— *pringsheimiana* on gooseberry, 1927.
— *psidii* on *Eugenia jambos*, 2037.
— — on pimento, 2958b.
— *purpurea* on sorghum, 1113l.
— *recondita*, comparison of rod and slide samplers for trapping uredospores of, 3405.
— —, effect of, on plant respiration, 751.
— —, folate and shikimate levels in uredospores of, 788.
— —, hosts of, 2126.
— — on *Aegilops*, 493, 2439.
— — on *Agropyron*, 493.
— — on barley, 111, 1819.
— — on *Bromus japonica*, 2660.
— — on cereals, 3076.
— — on rye, 2694.
— — on *Thalictrum*, 3417.
— — on *Thalictrum speciosissimum*, 493.
— — on wheat, see Wheat.
— — on wheat × *Agropyron intermedium*, 1489.
— — on wild grasses, 1487.
— —, resemblance of wheat 'brown neck' symptoms to, 3087.
— — +wheat streak mosaic virus on wheat, 2125.
— *sorghi* on maize, see Maize.
— *striiformis*, effect of atmospheric ions on germination of uredospores of, 32.
— — on *Aegilops*, 2439.
— — on *A. comosa*, 1834.
— — on barley, see Barley.
— — on cereals, 3063a, 3076.
— — on *Muehlenbergia hugelii*, 2660.
— — on *Poa pratensis*, 2509.
— — on wheat, see Wheat.
— — f.sp. *dactylidis* on *Dactylis glomerata*, 1910.
— *substriata* on tobacco, 891.
— — var. *penicillariae*, cytological studies on germinating teliospores and basidiospores of, 1532.
— — — — — on *Pennisetum typhoides*, 1113n.
— — — — —, self-inhibition and self-stimulation of uredospore germination in, 1769e.
— *triseti*, see *P. recondita*.
— *triticina*, see *P. recondita*.
— *trollii* on Ranunculaceae, 539.
— *veronicae-longifoliae* on *Veronica longifolia*, 2623.

*[*Puccinia*] *zoysiae* on *Zoysia*, 554.
— — on *Z. japonica*, 236, 1067.
Pucciniastrum epilobii, differentiation of *P. goeppertianum* on *Abies lasiocarpa* from, 448.
— — on *Abies balsamea*, 2562c.
*— — on *A. grandis*, 2586a.
— *goeppertianum* on *Abies lasiocarpa*, 448.
Pumpkin (*Cucurbita pepo*), cucumber mosaic virus on, in Germany, symptoms of, 1362.
—, *Mycosphaerella melonis* on, in N.Z., symptoms of, 2943.
—, *Pseudoperonospora cubensis* on, non-occurrence of, in S. Africa, 969.
—, tobacco mosaic virus str. Y–TAMV on, 3385.
—, wild cucumber mosaic virus on, production of tubes of virus particles by, 3614.
P.V.C. emulsion against *Guignardia citricarpa* on orange, 1127.
Pycnanthus angolensis, blue stain fungi and *Botryodiplodia theobromae* on, infection and penetration by, 645.
Pyrenochaeta lycopersici associated with tomato brown root rot, 3571.
— — in soil, 3571.
— *terrestris*, hosts and severity of, 2119.
— — in maize roots, 161.
— — on onion, 2930.
— — on tomato, 391e, 394j.
— —, technique for comparing hyphal cells of, 2632.
Pyrenomycetes on fruit, 1598.
Pyrenophora avenae on cereals, 1077.
— — on oats, 1858.
— *bromi* on *Bromus inermis*, 2511, 2743.
— *graminea* on barley, 98, 798.
— *teres* on barley, see Barley.
— — on cereals, 1077.
— — + *Cochliobolus sativus* on barley, 2690.
Pyricularia oryzae, effect of β-acylphenylhydrazine derivatives on, 516.
— —, factors affecting, 1543.
— — in air over rice fields, 1865a.
— — in Colombia, 3306.
— —, mechanisms of genetic changes in, 175.
— —, media for sporulation and stock cultures of, 1118b.
— — on rice, see Rice.
— —, physiological studies with, 1769i.
— —, production of indole acetic acid by, 3106.
— —, ultrastructure of, 2708.
— *setariae* on *Setaria italica*, 2154.
Pyridine in combination against *Peronospora tabacina*, 627.
Pyrus communis, see Pear.
— *serotina*, *Erwinia amylovora* on, var. react. to, 2525.
— — yuzuhada disease, (?)relationship of, to black-end and hard-end of pear, 2526.
— *ussuriensis*, *Erwinia amylovora* on, var. react. to, 2525.
Pythium, diagnosis and figures from original descriptions, 3741.
— in association with pea root rot, 952.
—, key to, 51.
—, transmitting pea false leaf roll virus, 1714.
— *acanthicum* on pine, 2863b.
*— (?)— on sugarcane, 2249b.
— *afertile* on pine, 3596.
— *aphanidermatum*, effect of bean exudates on growth of, 755; carbohydrates on toxicity of cycloheximide to, 426a; of different C sources on growth of, 3003; of N on toxicity of cycloheximide to, 426b.
[*Pythium aphanidermatum*] in soil, 442, 2902.
— —, morphology of zoospores of, 2085.
— — on barley, 2442.
— — on bean, 85, 1381k.
*— — on beet, 3260.
— — on carrot, 382, 1359.
— — on cotton, 1572.
— — on cucumber, 85.
— — on oats, 2442.
— — on *Phaseolus aureus*, 1351.
— — on potato, 382.
— — on tobacco, 3210.
— — on tomato, 85.
— — on wheat, 2442.
*— *arrhenomanes* on wheat, 127, 2442.
— *debaryanum*, *Aphelenchoides composticola* and *Ditylenchus myceliophagus* on, growth of, 2077.
— — in soil, 1347.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on beet, 1344.
— — on cabbage, 3620.
— — on *Capsicum*, 2027.
— — on cotton, 1571, 1572.
— — on pea, 952.
— — on trees, 2272, 2284.
— — on vetch, 2032f.
— — on wheat, 127.
— —, structure of cell wall of, 3039.
— —, taxonomic study of, 1792.
— *graminicola*, inhibition of, by soil fungi, 1785.
— — on wheat, 2132, 2682.
*— *hydnosporum* on pea, 1719.
— *irregulare*, taxonomic study of, 1792.
— — on trees, 2272.
— *myriotylum*, hosts of, 2434.
*— — on bean, 2913.
— — on groundnut, 2579, 2587b.
— *paroecandrum* on cotton, 1571.
— — on trees, 2272.
— — on wheat, 127.
— *splendens* on barley and oats, 2442.
— *sylvaticum* in soil, 1029.
— — on *Liquidambar styraciflua*, 908.
— *ultimum*, effect of chloramphenicol on, 2046, 2059.
— — in soil, see Soil.
— — on *Agrostis tenuis*, 3138.
— — on cotton, 527, 1571.
— — on maize, 2476.
— — on melon, 978p.
— — on parsley, 714.
— — on pea, 41, 952, 978c.
— — on *Phaseolus aureus*, 1351.
— — on trees, 2272.
— —, ultrastructural study of sexual reproduction in, 1443.

Quercus, see Oak.
Quince (*Cydonia oblonga*) as indicator for apple bark necrosis and apple sooty ring spot viruses, 2519.
— bark necrosis virus, ?relationships of, 2519.
—, *Coniothyris cydoniae* and *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Fabraea maculata* on, in U.S.A., 1921; control, 3495; effect of, on budding with pear, 1921; factors affecting, 3495; overwintering of, 3495.

[Quince], *Pseudolachnea elegans* on, in U.S.S.R., 1179.
—, *Sclerotinia linhartiana* on, control, 397h.
— sooty ring spot virus, ?relationships of, 2519.
Quinolate 15 as seed treatment for pine, 3595b.
— -20 as seed treatment for pea, 2905.
Quinolinate as seed treatment for apple, 1377m.
Quinoline as seed treatment for wheat, 1491.
8-quinolinols, effect of substituted constituents on antifungal activity of, 2599.
— -quinolinol benzoate against *Valsa cincta* on plum, 1199.
— — — in combination against *Valsa cincta* on plum, 3498.
— — phosphate against *Valsa cincta* on peach, 575.
Quinomethionate against *Sphaerotheca morsuvae* on currant, 1375q.
Quintozene against *Botrytis cinerea* on grapevine, 2791; on lettuce, 2343; *Corticium solani* on tomato, 318; *Fusarium oxysporum* f.sp. *vasinfectum* on tomato, 1970; *Plasmodiophora brassicae* on cabbage, 2307; *Rosellinia* on coffee, 1134; *Sclerotinia minor* and *S. sclerotiorum* on lettuce, 2343; *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Sphacelotheca reiliana* on maize, 159; *Streptomyces scabies* on potato, 1653, 2551; *Verticillium alboatrum* on tomato, 1970; as seed treatment for wheat, 2134; as soil disinfectant, 377, 967, 1377m, 2933a, 3595a, 3617, 3620.
—, effect of on *Corticium solani* strs. on carnation, 222; on growth of fungal antagonists, 1173c; on *Typhula* on *Ficus pumila*, 543; on *T. incarnata* on barley, 2691; on *Verticillium dahliae* on cotton, 1569.
—, inhibition of actinomycetes in soil by, 3025; of *Corticium solani*, *Fusarium oxysporum*, and *Sclerotium rolfsii* by, 3305a.
—, resistance of *Corticium solani* to, 3015.
—, toxicity of, to tomato, 2378.
— in combination against *Sclerotinia minor* on radish, 2356d; *Corticium solani* on broad bean, 3633.
— -Borzesti as soil disinfectant, 1377g.
— -thiram as seed treatment for wheat, 2134.

Radiation, effect of, on *Coniophora puteana* on timber, 2303; on germination of teliospores of *Tilletia* and *Ustilago*, 97; on *Serpula lacrimans* on timber, 2303; on susceptibility of wheat to *Erysiphe graminis*, 792.
Radicula sylvestris, tobacco mosaic virus on, amino acid composition of proteins of, 2111.
Radish (*Raphanus sativus*), *Albugo candida* on, anaerobic metabolism of, 2898; description of apparatus for measuring photosynthetic and CO_2 exchange in, 2310; effect of, on carbohydrate levels, photosynthesis and translocation in, 2311.
—, *Corticium solani* on, mode of penetration by, 2591.
— enation mosaic virus on radish in Japan, hosts of, study on, and transmission of, 2309.
— mosaic virus in U.S.A., differentiation of radish virus in Japan, from, 2309.
— — — on Indian mustard, 471.
—, *Pyrenochaeta terrestris* on, 2119.
—, *Sclerotinia minor* on, control, 2356d.
[Radish], Japanese (*Raphanus sativus* var. *raphanistroides*), *Alternaria japonica* on, formation of lignin, 1340.
Radosan against *Ustilago avenae* on oats, 1511.
Ramularia beticola on beet, *1343, 2584r, 2585e.
— *coriandri* on coriander, 278.
— *deusta* on *Lotus corniculatus*, 1168b.
— *gossypii*, *Mycosphaerella areola* perithecial state of, 1896.
— — on cotton, 821.
— *lewisii* on *Mimulus lewisii*, 2622.
Ramulispora sorghi on sorghum, 2587a.
*— — on Sudan grass, 807.
Ranunculaceae diseases in U.S.S.R., 539.
Rape (*Brassica napus* var. *oleifera*), *Plasmodiophora brassicae* on, in England, technique for testing for, 938.
—, *Sclerotinia sclerotiorum* on, in Germany, spread of, 1998.
Raphanus sativus, see Radish.
— — var. *raphanistroides*, see Radish, Japanese.
Raspberry (*Rubus*), *Agrobacterium tumefaciens* on, *Meloidogyne hapla* associated with, 2777.
—, *Botrytis cinerea* on, control, 2219; dichlofluanid residues on, 3664e.
—, *Cryptocoryneum lignicola* on, in U.S.S.R., 1179.
—, *Didymella applanata* on, in U.S.S.R., 2776, 3509; control and factors affecting, 3509; nuclear changes in ascus, 3160.
— diseases, Agric. Handbook U.S. Dept Agric. on, 3507.
—, *Elsinoe veneta* on, in U.S.S.R., 2776; control, 1377n.
—, *Hapalosphaeria deformans* on, in Scotland, 1209; effect of elvaron on, 3301b; epidemiology of, 1209.
—, Lloyd George, yellow blotch virus, ?identical with raspberry ring spot virus, 2218.
—, *Phytophthora erythroseptica* on, 1623.
*—, *Pseudomonas syringae* on, in Canada, 263.
— ring spot virus in the Netherlands, transmission of, by nematodes, 1059.
— — — — on cherry, 2217.
— — — —, privet virus in Denmark resembling, 730d.
— — — —, technique for detecting, 1457.
— — — — Lloyd George str. on raspberry (?)identical with Lloyd George raspberry yellow blotch, properties and transmission of, 2218.
—, *Rubus* stunt virus on, in U.S.S.R., identification of, 262.
—, *Sphaerotheca macularis* on, control, 2219.
—, strawberry latent ring spot virus on, in Scotland, transmission of, by seed and *Xiphinema diversicaudatum* associated with, 3508.
—, tomato ring spot virus on, effect of, on, 1622.
—, — — — — str. on, causing 'crumbly berry', 2775.
— virus diseases, control, 64.
—, *Xanthomonas rubi-idaei* on, in U.S.S.R., 3510.
Rauwolfia serpentina 'bunchy top' virus, resemblance of symptoms of, to aster yellows virus, 2799.
Ravenelia humphreyana on *Caesalpinia pulcherrima*, 2037.
Reglone, see Diquat.
Reports (see also Conferences), **Australia** (Div. Pl. Ind. C.S.I.R.O.), 1380; **Belgium** (Agron. Res. Cent., Gembloux), 2586; **Cambridge** Plant Breeding Institute, 2585; **Canada**

(Forest Insect & Disease Survey), 643, 2562; (Min. Agric., Quebec), 4; (Phytopath. Soc.), 978; (Pl. Res. Inst.), 3667; **Ceylon** (Rubber Res. Institute), 3549; (Tea Res. Institute), 1268; **Chile** (Grapevine diseases), 581; **Cyprus** (Agric. Res. Institute), 1123; **Denmark** (Seed Station), 940; (State phytopath. Exp. Station), 730; **E. Africa** (Agric. & Forestry), 1379; **E. Malling** Res. Stn., 2355; **Edinburgh** School of Agric., 3664; **France** (Diseases of market garden crops), 3611; (Int. Poplar Commission, Versailles), 334; **Germany** (Federal Biol. Inst. Agric. Forestry), 394, 2357; **Ghana** (Cacao Res. Institute), 3070; **Glasshouse Crops** Res. Institute, 390; **Hawaiian** Sug. Plrs' Ass. Exp. Stn, 2249; **Hong Kong** (Div. Agric. Fish.), 3668; **India** (I.A.R.I. New Delhi), 398, 2033; (Res. Dept Indian Coffee Bd), 2169, 3445; (S. India Tea Dept), 621; (Tea, Tocklai), 3203; **INRAT** (Fruit tree culture), 1924; **Italy** (Experimental lab. and Turin plant diseases observatory), 396; **Kenya** (Dept Agric.), 2, 2358, 2959; **Malawi** (Dept Agric.), 399; (Pl. Path. Lab., Bvumbwe), 1747; **Malaya** (Rubber Res. Institute), 880; **Mauritius** (Sugarcane), 3198; **Mediterranean region** (1st Meeting on Phytiatry & Phytopharmacy), 1745; **Natn Inst. Agric. Botany,** Cambridge, 3300; **Natn Veg. Res. Stn,** Warwick, 3299; **Netherlands** (Res. Stn, Floriculture Aalsmeer), 3459; (Wageningen Inst. Phytopath. Res.), 1; **N.S.W.** (Dept Agric.), 2032; **N.Z.** (Forest Res. Inst.), 919; **Nigeria** (Cocoa Res. Inst.), 2438; (Inst. Agric. Res., Samaru), 2587; (Inst. for Oil Palm Research), 3180; **Papua & New Guinea**, 400; **Phillipines** (Citrus virus diseases), 2164; (Int. Rice Res. Inst.), 169, 1537; **Queensland** (Bureau Sug. Exp. Stn), 882; **Reunion** (I.R.A.T.), 979, 3551; **Rhodesia** (Sec. Agric.), 3, 2359, 2588; **Rocky Mtn Forest** Exp. Stn, 2271; **Rothamsted,** 2584; **Rumania** (Plant Prot.), 397, 1377; **S. African** Sug. Exp. Stn, 1259; **Scottish** Hort. Res. Inst., 3301; **Tanganyika** (Sisal Grow. Ass.), 538; **Trinidad** (Cacao Res. Imp. College Agric.), 1470; **U.K.** (For. Res.), 3219; **Venezuela** (6th Agron. Conf.), 1381; **Welsh** Plant Breeding Stn, 3665; **W. Scotland** agric. College, 1746; **Wye College** Hop Res., 3524.

Review of Applied Mycology, Plant host—pathogen index to vols. 1–40, 1384.

Rhabdocline pseudotsugae on *Pseudotsuga menziesii*, 1325.

Rhacodiella vitis on grapevine, see Grapevine.

Rhamnus purpureus, alternate host for *Puccinia coronata* f.spp. *agrostis* and *festucae*, 3476.

Rheum, see Rhubarb.

Rhinotettix breviceps not transmitting *Pennisetum purpureum* stunting virus, 1379c.

Rhizina undulata, effect of temp. on ascospore germination of, 350a.

— — on pine, *3a, 350b.

— — on *Pseudotsuga menziesii*, 3241.

Rhizobium lupini, effect of, on *Fusarium oxysporum* f.sp. *lupini* on lupin, 1743c.

— *trifolii* in soil, 1172.

Rhizoctol as seed treatment for pine, 3595b.

Rhizoctonia in Iran, hosts of, 3063b.

— *carotae* on carrot, 2341.

— *dichotoma*, *R. endophytica* var. *endophytica*, and *R. e.* var. *filicata* on Coniferae, 1695.

[*Rhizoctonia*] *fragariae* on strawberry, forming mycorrhiza, 3669d.

— *globularis* and *R. hiemalis* on Coniferae, 1695.

— *lamellifera* on oil palm, 871.

Rhizophoma redescribed as *Rhizosphaera*, 1313.

Rhizopogon roseolus, antagonism of antibiotic from, to fungi, 1764.

Rhizopus, taxonomic study of, 1793.

— *kazanensis*, primary luminescence of, 460.

— *microsporus* and *R. nodosus*, synonymous with *R. oryzae*, 1793.

— *oryzae*, *R. microsporus*, *R. nodosus*, and *R. tritici* synonymous with, 1793.

— *stolonifer*, autotropism in spores of, 2051.

— —, effect of, on plant respiration, 751.

— —, inhibition of book-damaging fungi by, 3703; by quintozene, 1173c.

— — on apricot, 3694.

— — on beet, stored, 2903.

— — on cherry, 1925, 3694.

— — on coffee, 1558.

— — on fungal sclerotia, 1173b.

— — on papaw, 3061.

— — on peach, 3694.

— — on stone fruit, 3157, 3694.

— — on tobacco, 3565.

— — on tomato, 898.

— — on *Trichosanthes dioica*, 3061.

— — on vegetables, 2893.

— —, primary luminescence of, 460.

— —, tolerant to DCNA, 3694.

— *tritici*, synonymous with *R. oryzae*, 1793.

Rhizosphaera, taxonomy of, 1313.

— *kalkhoffii* and *R. pini* on Coniferae, 1313.

— — on spruce, 357.

— *radicata*, synonym of *R. kalkhoffii*, 1313.

Rhodandinitrobenzol against *Puccinia menthae* on peppermint, 3178.

Rhododendron, *Cylindrocladium floridanum* and *C. scoparium* on, in U.S.A., control, 3461.

—, *Fusarium*, *Nectria radicicola*, *Pestalotiopsis versicolor*, and *Phytophthora cinnamomi* on, control and symptoms of, 1374n.

— witches' broom not caused by virus, 394f.

Rhodotorula glutinis, inhibition of, by chloramphenicol, 2046.

Rhopalomyzus ascalonicus transmitting turnip yellows virus, 395g.

Rhopalosiphum insertum, *Entomophthora pyriformis* on, in France, key for differentiation of, 3323.

— *maidis*, *Entomophthora* on, in India, 413.

— — not transmitting maize mosaic virus in Hawaii, 1107.

— — transmitting abaca mosaic virus, 1577; maize mosaic virus, 149.

— *padi* transmitting barley yellow dwarf virus, 394e, 1078, 2659.

Rhubarb (*Rheum*) virus diseases, control by apical tip culture, 3294.

Rhus trilobata, *Cylindrosporium* on, control, 335.

Rhynchosphaeria cupressi on *Juniperus*, 2958b.

— *secalis* on barley, 1375i, 1849, 2585h.

Rhytisma acerinum on *Acer*, 1974.

Ribes, see Currant.

— *grossularia*, see Gooseberry.

Rice (*Oryza sativa*) 'accep na pula' in the Philippines, relationships of, 169.

— 'akagare' disease, study on, 1549.

—, *Aspergillus flavus* on, factors affecting

infection and germination of, 1467; production of hydrolytic enzymes by, 520.
[Rice] black-streaked dwarf virus on rice in Japan, effect of, forecasting of, and transmission of, 170; temperate Asia, 169.
— 'branca' in Portugal, ?Cu deficiency causing, 2481.
— 'bronzing' in Ceylon, symptoms of, 3112.
— bushy stunt ?virus in S. Vietnam, 169.
*—, *Cercospora oryzae* on, in India, morphology and symptoms of, *3107; Madagascar, 3065; *Sphaerulina oryzina* perfect state of, 179.
—, *Chaetomium trilaterale* and *Cochliobolus lunatus* on stored, production of hydrolytic enzymes by, 520.
— chlorotic stunt ?virus in S. Vietnam, 169.
—, *Cochliobolus miyabeanus* on, in Asia (S.E.), 2480; India, 1865b; Madagascar, 3065; Malawi, *1747d; Pakistan, 517; biochemical studies of diseased leaves of, 1869a, b; breeding against, 176; control, 177, 1113x, 1864, 2480; effect of fertilizers and sowing time on, 1122; factors affecting, 178, 517, 809; fine structure of hyphae of, 1871; pathological anatomy of, 1870; production of auxin by, 1113t; review of, 2161; study on, 178; var. react. to, 1113x.
*—, — *sativus* on, in N.S.W., *2032a.
—, *Corticium sasakii* on, in Taiwan, 180; control, 1864; physiological specialization of strs. of, 2711; strs. of, 180; technique for inoculating, 1537c.
—, — *solani* on, antagonism of *Trichoderma viride* to and cultural study on, 3108.
—, *Curvularia* on, in India, 1865b.
—, — *pallescens* on stored, production of hydrolytic enzymes by, 520.
— diseases in Asia (S.E.), 2480; breeding against, 1537, 2480; control, 2430.
— dwarf virus on rice in Japan, 169, 170; Philippines and temperate Asia, relationships of, 169; control, effect of, forecasting of, and transmission of, 170.
—, effect of fatty acids in soils and flood water on, 184.
—, *Entyloma oryzae* on, effect of plantvax and vitavax on, 1539; var. react. to, 519.
—, *Erwinia herbicola* on kernels of, morphological and physiological characters of, 521.
—, *Fusarium culmorum, F. episphaeria, F. oxysporum, F. roseum, F. solani* and *Gibberella fujikuroi* in field soil of, in U.S.A., 810.
—, *Gibberella fujikuroi* on, in India, 1865b; production of hydrolytic enzymes by, 520.
— grassy stunt virus on rice, effect of time of inoculation on, of, on yield, 1537f; relationships of, 168, 169.
—, *Helminthosporium* on, production of auxin by, 1113t.
—, — *sigmoideum* var. *irregulare* on, in the Philippines, 1537b.
— hoja blanca virus on rice, 2479, 3306; in Mexico, 1538; Western Hemisphere, 169; hosts of, 3103; transmission of, by vectors, 1538, 3103, 3439; var. react. to, 1538, 3439.
— khaira disease, Zn deficiency causing, 3111.
—, *Khuskia oryzae* on, relationship of, with host, 181.
— leaf yellowing virus on rice in India, relationships and transmission of, 168, 169.
—, *Leptosphaeria salvinii* on, in the Philippines, 1537b; control, 3336; effect of Cu, Zn, and Hg compounds on, 1545; evaluation of fungicides against, 811; var. react. to, 1537b; viability of sclerotia of, 182.
[Rice] mentek in Indonesia, ?virus causing, 169; rice tungro virus str. 'M' resembling, 513.
— 'necrotic mosaic' ?virus in Japan, 169.
— orange leaf virus on rice, relationships of, 168.
— 'pansukh' disease, composition of affected leaves, 185.
— penyakit merah virus in Malaysia, relationships of, 168; rice tungro virus str. 'M' resembling, 513.
— production manual, new edition of, 512.
—, *Pseudomonas* (?)*schuylkilliensis, P.* (?)*straminea*, and *P.* (?)*trifolii* on, morphological and physiological characters of, 521.
—, *Pyricularia oryzae* on, 1113r; in Asia, 1537a, 2480; Colombia, 1542, 2157; Hungary, 514; India, 1113v, 1865b; Japan, 171; Madagascar, 3065; Philippines, 2710; assessment of non-mercury fungicides against, 2159; breeding against, 171; classification and identification of races of, 171; C.M.I. description of, 3030; control, 1113y, z, 1120, 1541, 1864, 2159, 2160a, b, 2480, 2709; diurnal periodicity in conidia dispersal, 173; electron micrographs of, 1866a, b; factors affecting, 1113w, 1121, 1867; fine structure of hyphae of, 1871; forecasting of, 1808; genetics of, 2156, 2707; geographical distribution of, 1113v; identification of, 2157; inhibition of, 2160b; nutritional aspect of host-parasite relationship of, 3104; physiologic races of, 172, 514, 1113v, 1117, 1542, 1868; pipecolic acid content in relation to resistance, 2158; relationship between water movement and temp. in, 174; resistance of, to fungicides, 3105; to kasugamycin, 515; review of origin of resistant vars., 171; technique for assessing degree of resistance to, 1118a; use of non-irrigated nursery for breeding resistant plants, 1119; var. react. to, 171, 172, 1113v, 1537a, 1540, 1544, 2156.
— rosette virus on rice in the Philippines, relationships of, 169.
—, *Sclerospora macrospora* on, symptoms of, 518.
—, *Sphaerulina oryzina* on, perfect state of *Cercospora oryzae*, 179.
— straighthead, var. react. to, 1540.
— streak in Senegal, physiological, 1462.
— stripe virus on rice in Japan, 170; temperate Asia, 169; control, effect of, on yield, and forecasting of, 170; transmission of, by vectors, 170, 2706.
— stunt virus on rice in the Philippines, relationships of, 169.
—, *Tilletia barclayana* on, effect of plantvax and vitavax on, 1539.
— transitory yellowing virus on rice, relationships of, 168, 3102.
—, *Trichometasphaeria turcica* on, production of auxin by, 1113t.
— tungro virus on rice in the Philippines, 1115; genetics of, 1537e; leaf starch in relation to, 1537h; relationships of, 168, 1115, 2155, 3102; technique for purifying particles of, 1116; transmission of, by vectors, 1537e, 2155.
— — — strs. on rice, symptoms of and transmission of, by vectors, 513.

[Rice], *Ustilaginoidea virens* on, in India, 1865b; Venezuela, 1381c.
—, *Verticillium* on, resistance to, 478.
— virus diseases in Japan, 170; Trop. Asia, 168; conference on, at Int. Rice Res. Inst., 169; control, 169, 170; differentiation of, 168; effect of, on plant and vector, 169; on yield, 170; forecasting of, 170; transmission of, by vectors, 169, 170.
— — -like disease in Kenya, 2959b.
—, *Xanthomonas oryzae* on, in Asia (S.E.), 2480; India, 1547, 3110; anatomical study of, 2162; classification of strs. of, 183; control, 812, 1113s, 1864, 1872, 2480, 3110; effect of Cu spraying on, 1113s; of metabolite of, on growth, 1874; of N on susceptibility to, 2712; epidemiology of, 3110; resistance of, to strs. of, 3109; symptoms of, 3440; technique for inoculating, 1537d; var. react. to, 183, 1537d, 1547, 1873, 3110.
—, — — strs. on, in India and the Philippines, resistance to, 183.
—, — *oryzicola* on, in India, taxonomy of, 813; var. react. to, 1548.
— yellow dwarf virus on rice in Asia, 169; India, 1114; Japan, 170; effect of time of inoculation on, 1537g; effect of, on yield, 170, 1537g; forecasting of, 170; relationships of, 168; transmission of, by vectors, 170, 1114, 2155.
— — -orange leaf virus on rice in Thailand, 168, 169, 1115; identical with rice tungro virus, ?513, 2155; relationships of, 168; symptoms of, 2155; transmission of, by vectors, 169, 1115, 2155.
— — stripe chlorosis ?virus in India, 169.
— — stunt ?virus in S. Vietnam, 169.
—, zinc deficiency in, causing khaira disease, 1113u.
Ricinus communis, *Cercospora coffeicola* on, 399d; survival of, in soil debris, 2169.
— —, — *ricinella* on, in Colombia, 1939.
— —, *Melampsora ricini* on, C.M.I. description of, 3731a.
— —, *Sclerotinia ricini* on, in Colombia, 1939.
Rimocidin against plant diseases in Hungary, 1404.
Rishitin, new antifungal substance isolated from *Phytophthora infestans*-infected potato, 1407.
Robinia, bean yellow mosaic virus on, in Bulgaria, 1460.
— mosaic virus on *Robinia* in Hungary, *2568; Yugoslavia, 3589; review of, 1743a; transmission of, by vectors, 2568, 3589.
Rosaceae, *Ascochyta* on, in U.S.S.R., biology of, 2433.
—, plum line pattern virus on, 3156.
—, *Podosphaera tridactyla*, *Sphaerotheca macularis*, and *S. pannosa* on, C.M.I. description of, 3731b.
Rose (*Rosa*), *Coniothyrium* on, fungicidal properties of phytoncides of, 1148.
—, *Cylindrocladium scoparium* on, 1930.
—, *Diplocarpon rosae* on, factors affecting, 1589.
—, *Gnomonia rubi* on, 2357d.
—, *Griphosphaeria corticola* on, in Scotland, 1746c.
—, *Macrophoma camarana* on, resemblance of symptoms to *Leptosphaeria coniothyrium*, 549.
— mosaic virus, apple mosaic virus identical with, serology of, 2651.
[Rose mosaic virus], rose yellow vein mosaic virus different from, 230.
— — — on cucumber, 843.
— mottled mosaic virus on rose, hosts and symptoms of, 2765.
—, *Phragmidium disciflorum* on, in U.S.S.R., morphology and symptoms of, 2366.
—, — *mucronatum* on, control, 1580.
—, — *tuberculatum* on, in U.S.S.R., 1164.
—, *Prunus* necrotic ring spot virus on, in U.S.A., causing mosaic, 401b.
—, *Sphaerotheca humuli* on, control, 1401.
—, — *pannosa* on, in Netherlands, 3459h.
—, — — var. *rosae* on, in U.S.S.R., 1164, 2366; control, 1164, 2366; evaluation of fungicides against, 20; morphology and symptoms of, 2366.
—, strawberry latent ring spot virus on, transmission of, by nematodes, 1060.
— streak virus, rose yellow vein mosaic virus different from, 230.
*— — — on rose in S. Africa, 1909.
— virus diseases, symptoms of, 1163.
— wilt virus, rose yellow vein mosaic virus different from, 230.
— yellow mosaic virus on rose in U.S.A., effect of heat treatment on, 401b.
— — vein mosaic virus, differentiation of, from other rose viruses, 230.
Rosellinia aquila, comparison of hosts and morphology of, with *R. herpotrichioides*, 2850.
— *arcuata* on tea, 1962.
— *bunodes* on coffee, 1134, 1135.
— *herpotrichioides*, comparison of hosts and morphology of, with *R. aquila*, 2850.
— *necatrix*, inhibition of *Trametes sanguinea* by, 2304.
— — on almond, 2215.
— — on apple, 3154.
— — on fruit trees and ornamentals, 3064.
— *pepo* on coffee, 1135.
— *quercina*, comparison of hosts and morphology of, with *R. thelena*, 2850.
— *thelena* on oak, 2850.
Roselliniaceae on fruit crops, 1598.
Rottboellia exaltata, sugarcane mosaic virus on, 2250.
Rowan, see *Sorbus aucuparia*.
Rubber (*Hevea brasiliensis*), B toxicity and Ca deficiency in, 616.
—, *Colletotrichum crassipes* and *C. dematium* on, in Malaysia, 3059b.
— diseases in Mexico, account of economic importance of, 2820; control, 2820, 2821; factors affecting and symptoms of, 2820.
—, *Dothidella ulei* on, effect of butyl 2,4,5-T in diesel oil and pentachlorophenol on foliage of, 880e.
—, *Fomes lignosus* on, 615; control, 1257, 3549d; identification of, 3549d.
—, — *noxius* on, in Malaysia, 880a; control, spread, and symptoms of, 615.
—, *Gloeosporium alborubrum* on, in Ceylon, 299; Malaysia, 1258, 1958; aerial spraying against, 1258; control, 1258, 1958; effect of light on spore germination of, 299; factors affecting sporulation of, 3549b; inhibition of, 880d.
—, *Glomerella cingulata* on, in Malaysia, 3059b.
—, *Helminthosporium heveae* on, in Malaysia, 880c; control, 880c, 1256.

[Rubber], *Hypoxylon rubiginosum* on, in India, 2655.
—, *Oidium heveae* on, control, 1258; factors affecting, 3549a.
— patch canker, *Phytophthora palmivora* str. associated with, 3550.
—, *Phytophthora* on, in Ceylon, 2823; Malaysia, 1258; aerial spraying against, 1258; control, 1258, 2823; technique for recovering species pathogenic to, 1657.
—, — *meadii* on, in Ceylon, 3549c; Thailand, (?)2822; identification of races of and overwintering sites of, 3549c.
—, — *palmivora* on, in Malaysia, 880b, 3550; Thailand, (?)2822; inoculation of, 880b.
— root diseases, control, 881.
Rubus stunt virus on raspberry, 262.
— *idaeus*, see Raspberry.
— *occidentalis*, see Raspberry.
*— *strigosus*, *Phyllosticta argillacea* on, in U.S.A., 87.
— *ursinus* var. *loganobaccus* see Loganberry.
**Rudbeckia*, *Mycosphaerella ligulicola* on, 1154.
Russula in Europe and N. Africa, review of, 52.
Rusts, see Uredinales.
Rye (*Secale cereale*), barley stripe mosaic virus on, 3427.
—, *Calonectria nivalis* on, in Pacific Northwest, 2681; control, 146; ecology of, 2681; effect of thiabendazole and furidazole on, 1819; resistance to, 2661; ?significance of perithecia of, 2681; var. react. to, 1859.
—, *Cercosporella herpotrichoides* on, effect of temp. on, 783.
—, *Claviceps purpurea* on, in U.S.S.R., factors affecting, 1478; alkaloid production by and infectivity of, 1419; properties of new str. of, 1104.
— diseases in Argentina, severity of, 2117; control, symptoms of, 1473; review of, 100.
—, *Erysiphe graminis* on, factors affecting, 1820.
—, *Exosporium pampeanum* on, in Argentina, resemblance of, to *E. nattrassii*, 1512.
— foot rot, 1094.
— frost damage, review of, 100.
—, *Puccinia agropyri* on, resistance to, 95.
—, — *graminis* on, in Canada, 3075; photochemical activity of chloroplasts in, 2694; prevalence of physiologic races of, 3404.
—, — *recondita* on, in U.S.S.R., forms of, 1815; photochemical activity of chloroplasts in, 2694.
*—, *Pythium myriotylum* on, susceptibility to, 2434.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
—, *Tilletia contraversa* on, in Switzerland, 1809.
—, *Typhula incarnata* and *T. ishikariensis* on, resistance to, 2661.
—, wheat stunt virus on, incidence of, 1474.

S-3, fungitoxicity of, 2982.
Saccharomyces cerevisiae, inhibition of, by mushroom, 2954.
— —, mechanisms of genetic changes in, 175.
— —, technique for separating ascospores and diploid cells of, 2088.
— *pastorianus*, effect of folpet on, 3688a, b.
— —, factors affecting toxicity of cycloheximide derivatives to, 746.
— *vini*, mechanisms of genetic changes in, 175.
Saccharum officinarum, see Sugarcane.
Sadoplan 75, see Thiram.
*Safflower (*Carthamus tinctorius*), *Corticium solani* on, in U.S.A., factors affecting, 282.
—, *Phytophthora drechsleri* on, effect of irrigation on, 592; host-parasite relationship in, 3527.
—, *Puccinia carthami* on, in Mexico, 3177; control, 3176, 3177; distribution, spread, and symptoms of, 3176.
Saintpaulia, *Erwinia* on, 2357c.
Salix, *Ciborinia foliicola* on, in Canada, 643d.
—, *Cryptodiaporthe salicella* on, in Canada, imperfect and perfect states of, 643b.
—, fungi on, in France, symptoms of, 336.
—, *Godronia fuliginosa* on, 3588.
—, *Marssonina salicicola* on, in U.K., 3219.
—, *Nectria galligena* on, initial establishment and penetration of, 1978.
—, *Physalospora miyabeana* on, in Scotland, 1746d.
—, *Uncinula salicis* on, in Canada, 2562d.
—, *Venturia chlorospora* on, in Scotland, 1746d.
Salsola kali, *Cercospora beticola* on, 2314.
Sambucus, *Phoma exigua* var. *sambuci-nigrae* on, 1442.
*—, tobacco mosaic virus on, transmission of mechanically, 1052.
Sandalwood (*Santalum album*) spike virus on *Lablab niger*, 1312.
— — — on sandalwood in India, inclusion bodies in leaf epidermis cells of, 2855; purification of viral protein in, 1979; transmission of, by sap, 1312.
— — — on *Stachytarpheta indica*, 1312.
Santalum album, see Sandalwood.
Santar M against *Nectria galligena* on apple, 3302a.
**Sapindus*, *Mycosphaerella sapindicola* on, in India, 3590.
Saprolegnia, morphology of zoospores of, 2085.
Saussurea candicans, *Alternaria tenuis* on, in U.S.A., introduced from abroad, 2437.
Schizaphis graminum transmitting maize mosaic virus, 148, 149.
Schizophyllum commune, cellobiose as paramorphogen in, 1778.
— —, ecology of, 930.
— —, effect of air-pressure on spore discharge in, 2967.
— —, genetics of, 3378.
— — on stone fruit, 1613.
— — on timber, 1335, 2285, 3607.
Scilla hyacinthoides, *Uromyces reichertii* on, in Israel, 137.
Scirrhia pini on pine, see Pine.
— —, world distribution of, 921.
Scleroderma cepa and *S. verrucosum* on *Eucalyptus*, forming mycorrhiza, 1003.
— *vulgare*, effect of simazine on, 749.
Scleroderris lagerbergii on pine, see Pine.
— — on spruce, 2879.
Sclerophoma pithyophila on *Cupressus lusitanica*, 1379e.
*— — on pine, 2562t.
— — on *Pseudotsuga menziesii*, 3240.
Sclerospora graminicola in India, hosts of, 1113p.
— — on *Pennisetum typhoides*, 1113i, 1533, 3100.
— *macrospora*, electron microscopy of, 2627.
— — on rice, 518.
— — on sugarcane, 1259b.
*— — on wheat, 3088.

[*Sclerospora*] *rayssiae* var. *zeae* on maize, 2705.
— *sacchari* on maize, 1109, 2705.
— — on sorghum, 3305c.
— — on sugarcane, 1266.
— *sorghi* on sorghum, 1113 l, 2359c, 2587a.
Sclerotinia borealis, effect of temp. on growth of, 978i, 2612.
— — on wheat, 2680.
*— *bulborum* on tulip, 3473.
— *convoluta* on *Iris*, 839.
— *cydoniae* on fruit trees, 3486.
— *draytonii* on *Gladiolus*, 2182.
— — on *Iris*, 2366.
— *fructicola*, factors affecting production of stromata and microconidia of, 1779.
— —, isolation of metabolite of, 1380e.
— — on apple, 2201.
— — on bean, 1420.
— — on pea, 758, 1420, 3666t.
— — on peach, see Peach.
— — on pear, 2201.
— — on stone fruit, 2032q, 3157; stomatal rind formation in, 3352.
— *fructigena*, non-utilization of pisatin by, 1722.
— — on apple, 850, 3149.
— — on fruit trees, 3486.
— — on plum, 1615.
— *fuckeliana*, absence of, in Bulgaria, 453.
— *homoeocarpa* on *Agrostis*, 2590d, 2745.
— — on *A. palustris* and *A. tenuis*, 2744.
— *laxa* on almond, 2770.
— — on apricot, 1924.
— — on cherry, 1404.
— — on fruit trees, 3486.
— — on plum, 1615.
— —, technique for studying spore germination of, 59.
— —, toxicity of, D735 to, 739.
— *libertiana*, factors affecting formation of ascus state of, 2404.
— *linhartiana* on quince, 397h.
— *mali* on apple, 3150.
— *minor* on lettuce, 2343.
— — on radish, 2356d.
— — on sunflower, 1222.
— *ricini* on *Ricinus communis*, 1939.
— *sclerotiorum*, *Acrostalagmus roseus* and *Coniothyrium minitans* on sclerotia of, 1173b.
— —, effect of *Bacillus licheniformis* and *B. subtilis* on growth and sclerotium formation by, 3363.
— —, electron micrography of, 2624.
— —, method for predicting occurrence of, 1073.
— — on bean, 1352.
— — on *Chrysanthemum*, 3467.
— — on lemon, 525.
— — on lettuce, 2343, *2359a.
— — on orange, 525.
— — on Ranunculaceae, 539.
— — on rape, 1998.
— — on soybean, 1939.
— — on sunflower, 1222.
*— — on tomato, 3218.
— —, production of pectolytic enzymes by, 3719.
— —, *Rhizopus stolonifer* and *Sporotrichum carnis* on sclerotia of, 1173b.
— *squamosa*, culturing of, 2590k.
— — on onion, see Onion.
— *trifoliorum*, *Acrostalagmus roseus*, *Coniothyrium minitans*, *Rhizopus stolonifer*, and *Sporotrichum carnis* on sclerotia of, 1173b.
[*Sclerotinia trifoliorum*], effect of O deficiency on growth of, 1173c.
— —, factors affecting growth of, 1173c.
— —, inhibition of, by quintozene, 1173c.
— — on clover, see Clover.
*— — on vetch, 2490e.
Sclerotiniaceae, toxicity of oxathiin fungicides to, 978b.
Sclerotium cepivorum, germination of sclerotia of, induced by *Allium* extracts, 3648.
— — on garlic, 2932, 3611.
— — on leek, 2932.
— — on onion, see Onion.
— *rolfsii*, accumulation and translocation of P-32 in sclerotia of, 2067.
— —, basidial formation by, 2604.
— —, culture of, 428, 753.
— —, development of sclerotia of, 3727.
— —, effect of atrazine on growth of, 430; *Bacillus licheniformis* and *B. subtilis* on growth and sclerotium formation by, 3363; plant residues and soil microorganisms on parasitic and saprophytic activities of, 429.
— —, enzymatic maceration of plant tissue by, 3666i.
— —, enzyme activity in sclerotia of, 3006.
— —, hosts of, 1381i, 1810.
— — in soil, see Soil.
— —, inhibition of, by difolatan and quintozene, 3305a.
— —, method for predicting, 1073.
— —, natural melanins of, 3351.
— — on bean, 1381k.
— — on beet, 3061.
— — on coffee, 1558.
— — on *Eleusine coracana*, 1113o, q.
— — on *Eriobotrya japonica*, 3169.
— — on groundnut, 1731a, 1939.
— — on *Laurus nobilis*, 2501.
— — on soybean, 1939.
— — on sunflower, 1222.
— — on tomato, 896.
— — on wheat, 1845, 2132, 3083.
— —, respiration of sclerotia of, 754.
— —, structure and synthesis of β-D-glucan of, 3353.
— —, X-ray analysis of hyphal and sclerotial walls of, 3726.
— *tuliparum* on tulip, 3473.
Scolecotrichum graminis on *Bromus*, 1168a.
Scrophulariaceae, fungi on, 2622.
Scytalidium, inhibition of *Poria carbonica* on *Pseudotsuga menziesii* by, 2570.
Seaweed, hydrolysed, see Maxicrop.
Secale cereale, see Rye.
Seed health, tests for, 7, 476, 1071.
Selenophoma bromigena on *Bromus inermis*, 1169.
Selinon against *Agrobacterium tumefaciens* on grapevine, 2541.
Semicarbazone ineffective against *Cronartium comptoniae* and *C. quercuum* on pine, 3233.
Senecio, potato virus Y and tobacco etch virus can infect, 1455.
— *cruentus*, see Cineraria.
— *vulgaris*, *Arabis* mosaic virus on, transmission of, by seed, 3508.
— —, symptomless hosts of beet mild yellows virus, 1708.
Septogloeum gillii, association of, with *Glomerella cingulata* on *Arceuthobium americanum*, 337.

Septomyxa affinis, transformation of steroids by spores of, 2065.
— *tulasnei* on *Acer*, 643c.
Septoria, C.M.I. description of, 42.
— and septorioid fungi on Gramineae in Norway, monograph on, 2081.
— *apiicola* on celery, see Celery.
— *arabidis* on *Arabis pterosperma*, 3623.
— *caraganae* on *Caragana arborescens*, 643d.
— *dauci* on carrot, 1464.
*— *gladioli* on *Gladiolus*, 544.
— *macropoda* var. *septulata* on *Poa pratensis*, 2509.
— *nodorum*, see *Leptosphaeria nodorum*.
— *pastinacae* on parsnip, 1464.
— *pisi* on *Vicia villosa*, 1168b.
— *ribis* on gooseberry, 2772.
— *sisymbrii* on *Sisymbrium columnae*, 3623.
— *tritici* f.sp. *avenae* on oats, 1168a.
— — var. *lolicola* on *Lolium multiflorum*, 1168a.
— *umbelliferarum* on caraway and coriander, 1464.
Sequestrin 138 Fe against iron deficiency in apple, 567.
Sequoia gigantea, *Cercospora cryptomeriae* on, in Japan (?)introduced from N. America, synonymous with *C. sequoiae*, 1327.
Serpula lacrimans, effect of temp. on growth of, 1417.
— — on timber, 1332, 2303.
Serratia marcescens on cowpea, 2373.
Sesame (*Sesamum indicum* and *S. orientale*), *Alternaria* on, in Venezuela, 1381h.
— angular bacterial rot in Colombia, 1939.
—, *Cercospora sesami* on, in Colombia, 1939; Venezuela, effect of, on yield, and var. react. to, 1381h.
—, *Corticium solani* and *Corynespora cassiicola* on, in Colombia, 1939.
— diseases in Italy, 1807.
—, *Fusarium* on, in Colombia, 1939.
— leaf curl virus on sesame, control and var. react. to, 2800.
—, *Myrothecium roridum* on, in India, 868.
—, *Phoma* on, var. react. to, 1381b.
— phyllody virus on *Brassica* and *Crotalaria*, 3254.
— — — on sesame, control and var. react. to, 2800.
—, *Phytophthora* on, var. react. to, 1381b.
—, — *nicotianae* on, in Iran, 3063b.
—, *Pseudomonas sesami* on, in Brazil, 869; India, *1942; study on, 869.
— virus disease in India, symptoms and transmission of, 3179.
— wilt in Colombia, 1939.
—, *Xanthomonas sesami* on, transmission of, by seed, 593; var. react. to, 2230.
Setaria italica, *Cochliobolus setariae*, *Curvularia*, *Fusarium oxysporum*, and *Pyricularia setariae* on, control, 2154.
— —, *Pseudomonas rubrilineans* not infecting 804.
— *lutescens*, maize virus can infect, 150.
— *verticillata*, *Sclerospora graminicola* on, in India, 1113p.
— *viridis*, maize dwarf mosaic virus on, 2144.
Sewage, fungi in, growth and metabolism of, 2392.
Shell copper against *Cercospora nicotianae* on tobacco, 2831.
— DD, effect of, on mycorrhiza of forest trees, 1410.
Shepherdia argentea, *Cylindrosporium* on, control, 335.
Shillagene against *Xanthomonas oryzae*, 3339.
Shirlan WS against *Ceratocystis paradoxa* on pineapple, 3513.
Siaprit P.S. against *Botrytis cinerea* on grapevine, 397 l.
Simazine against *Cercosporella herpotrichoides* on wheat, 2678.
—, effect of, on ectotrophic mycorrhiza of pine and spruce, 749; on *Gibberella zeae* on cultivated plants, 2044; on maize dwarf mosaic virus on maize, 3093; on *Scleroderma vulgare*, 749; on *Tricholoma pessundatum*, 749.
— in combination, effect of, on soil micro-organisms, 2075.
Sinapis alba, *Alternaria brassicae* and *A. tenuis* on, control, 940; factors affecting discolouration of seeds of, 940.
Sirophoma capsici on *Capsicum*, 720.
Sisal (*Agave sisalana*) korogwe leaf spot, 538b.
— parallel streak, factors affecting, 2358e.
— zebra disease, study on, 538a.
Sistan as soil disinfectant, 3127.
Sisymbrium columnae, *Septoria sisymbrii* on, in India, description of, 3623.
Sitonia hispidula, relationship of, to incidence of *Fusarium* on clover, 2517.
SMDC, see Vapam.
Sodium arsenite, use of, for killing potato haulms, 1235c; for poisoning rubber root stumps, 1257.
— chlorate, use of, for killing potato haulms, 1235c.
— dichlordon, effect of, on *Gibberella zeae* on cultivated plants, 2044.
— diethyldithiocarbamate, fungitoxicity of, 2041.
— diethylthiocarbamate as seed treatment for wheat, 2446.
— fluoride against *Coniophora puteana*, *Fomes fomentarius*, and *F. pinicola*, 1702.
— hexametaphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
— hypochlorite against *Fusarium roseum* and *F. solani* on cantaloupe, 2582.
— — as seed treatment for groundnut, 2587c; *Setaria italica*, 2154; *Sinapis alba*, 940.
— nitrate against *Corticium fuciforme* on turf, 1592.
— *o*-phenylphenate against *Ceratocystis paradoxa* on pineapple, 3513; *Guignardia citricarpa* on orange, 1127; *Penicillium digitatum* and *P. italicum* on citrus, 3442.
— —, see also SOPP.
— pentachlorophenate against *Nectria galligena* on apple, 2200.
— tetraphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1025.
— trichloroacetate, effect of, on development of *Pencillium* and *Trichoderma* in soil, 1027.
— tripolyphosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
Sogata cubana and *S. orizicola* transmitting rice hoja blanca virus, 1538.
Sogatodes cubanus transmitting rice hoja blanca virus, 3103.
— *oryzicola* transmitting rice hoja blanca virus, 3103, 3439.

Soil, *Actinomucor elegans* in, effect of dexon on, 1427.
—, — *repens* in, effect of soil sterilization on, 3018.
—, actinomycetes in, in India (S.), correlation between antagonism of and physical and chemical properties of soil, 3369; effect of heat treatment on, 1428; of herbicides on, 1027, 2075; inhibition of, 3025; selectivity and toxicity of disinfectants to, 1026a.
—, *Aphanomyces cochlioides* in, Chile, control and distribution of, 2902; effect of crop residues on, 440.
—, apparatus for collecting cores of, 2409.
—, *Armillaria mellea* in, in Rhodesia, 3020; effect of fungicides on, 3019; inhibition of rhizomorph development by, 3020; stimulation of rhizomorph development by *Aureobasidium pullulans*, 2072.
—, *Arthrobotrys conoides* in, use of fluorescent brightener for studying effect of fungistasis on, 3028.
—, *Aspergillus* in, in U.S.S.R., 2068; antagonism of, to predacious fungi, 441; effect of culture in, on taxonomic characters of, 1025.
—, — *flavus* in, technique for isolating, 58.
—, — *melleus* and *A. terreus* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, *Bacillus cereus* and *B. megaterium* in, antagonism of, to predacious fungi, 441.
—, — *mesentericus* in, antagonism of, to predacious fungi, 441; effect of herbicides on antagonists of, 2075.
—, — *subtilis* in, antagonism of, to predacious fungi, 441; effect of heat treatment on inhibition of *Corticium solani* by, 1428.
—, bacteria in, effect of heat treatment on, 1428; of herbicides on, 1027, 2075; of plant toxins on, 3366; lysing *Fusarium bulbigenum* var. *blasticola*, 3242; mycolytic strs. of, 2074; recolonizing chemically disinfected soil, 1026b; selectivity and toxicity of disinfectants to, 1026a.
— biology, book on, 1780.
—, *Botrytis cinerea* in, effect of soil sterilization on, 3018.
—, *Cephalosporium* in, effect on taxonomic characters of, 1025.
—, *Cercospora antirrhini* in, survival of, 1149.
—, *Cercosporella herpotrichoides* in, soil disinfection ineffective against, 2584n.
—, *Chaetomium* in, effect on taxonomic characters of, 1025.
—, *Cladosporium* in, effect of herbicides on, 1027.
—, — *resinae* in, in Australia, perfect state of, 3344.
—, *Cochliobolus miyabeanus* in, saprophytic activity of, 3022.
—, — *sativus* in, chlamydospore formation in conidia of, 3084; colonization of wheat straw by, 3085; propagule assay for, 760; saprophytic activity of, 3022; survival of, 40.
—, Conference on microenvironment and biology of, 3364.
—, *Coniophora puteana* in, inhibition of, by *Trichoderma viride*, 648.
—, *Corticium praticola* in, inhibition of, by leachates, 1028.
—, — *solani* in, in Chile, 2902; Ireland, behaviour and persistence of, 1784; control, 38, 2902; distribution of, 2902, 3367; effect of age of inoculum on virulence of, 761; of chloronitro- and chlorobenzenes on, 2413; of heat treatment on inhibition of, by *Bacillus subtilis*, 1428; identifying mycelium of, 3669a; saprophytic survival of, 3021.
[Soil] cultures, new lid for, 2418.
—, *Cunninghamella echinulata* in, interaction of, with *Fusarium solani* on potato, 2816.
— disinfectants, evaluation of, 17.
— disinfection against *Agrobacterium tumefaciens* on cherry, 3504; *Arabis* mosaic virus, 859; *Armillaria mellea* on citrus, 1886; *Botrytis cinerea* on lettuce, 2343; cabbage and cauliflower root rots, 3620; *Cercosporella herpotrichoides*, 2584n; *Corticium solani* on cabbage, 1336; on cotton, 3452; on *Hibiscus cannabinus*, 2730; on potato, 613; *Corynebacterium michiganense* on tomato, 640; *Cylindrocladium floridanum* and *C. scoparium* on nursery crops, 3461; damping-off of pine, 3595a; *Fomes* on *Hevea* rubber, 3549d; fruit tree replant disease, 1599; fungi on apple, 1377m; groundnut, 1731b; *Fusarium*, 1319, 3594; on pea, 3265; *F. avenaceum* on carnation, 3126; *F. oxysporum* on pea, 6946; *F. o.* f.sp. *cumini* on cumin, 279; *F. o.* f.sp. *pisi* on pea, 1718; *F. o.* f.sp. *vasinfectum*, 1895; *F. roseum* on carnation, 2356e; *F. solani* on *Matthiola*, 3126; *F. s.* f.sp. *pisi* on pea, 1718; *Gibberella fujikuroi* on *Freesia*, 390g; *Macrophomina phaseoli* on *Abies grandis*, 355; on groundnut, 377; on pine, 355; *Nectria radicicola* on cyclamen, 3459c; nematodes, 694b, 2589; *Ophiobolus graminis*, 2584n; *Peronospora* on *Anemone*, 3127; *Phymatotrichum omnivorum*, 2491; *Phytophthora fragariae* on strawberry, 3301c; *P. infestans* on potato, 597e; *P. lateralis* on *Chamaecyparis lawsoniana*, 3466; *Plasmodiophora brassicae* on Cruciferae, 3617; *Poria hypolateritia* on tea, 1962; *Pseudomonas syringae* on peach, 261; *Puccinia menthae* on peppermint, 3178; *Pyrenochaeta terrestris* on tomato, 391e; *Pythium*, 1427; on pea, 1718, 3265; *Rhizoctonia*, 1319; on pea, 3265; *Rosellinia arcuata* on tea, 1962; *Sclerotinia* on lettuce, 967; *S. minor* and *S. sclerotiorum* on lettuce, 2343; *Sclerotium cepivorum* on onion, 2933a; *Sphaerotheca fuliginea* on cucumber and squash, 3655; *Streptomyces scabies* on potato, 1377g; *Thielaviopsis basicola* on cyclamen, 1156, 3459c; *Tilletia contraversa* on wheat, 2357b; tobacco mosaic virus on tomato, 1675; *Ustilago nuda* on barley, 1852; (?)*Verticillium* on potato, 613; on tomato, 639, 2356f; *V. alboatrum* on cotton, 3486, 3117; *V. cinerescens* on carnation, 2356e; wheat mosaic virus, 3074.
— —, apparatus for, 2356b.
— — by atrazine, 3093; bacteria in compost, 1141; botran, 2933a; brassicol, 967, 1377m, 3595a; captan, 391e, 2356g; in combination, 967; carbathion, 639, 1336; 1-chloro-2-nitro-propane, 1718; chloropicrin, 859, 951, 1026a, 1599, 1675, 3127; in combination, 3074; cryptonol, 1156; dazomet, 951, 2584n; DD, 694b, 859, 951; in combination, 2356e, f; dexon, 1427, 3301b, c; 1,2-dibromo-3-chloropropane, 261; difolatan, 597e; dimethyl sulphoxide in combination, 3617; disulfoton, 3093; dithianon, 391e; di-trapex, 2356f; DNB, 1374g; Dupont 1991, 2486, 3265, 3461, 3655; euparen, 391e; formalde-

hyde, 390g, 951, 1675, 3126, 3127; fumazone, 3595a; hexachlorobenzol, 2357b; lanstan, 3436, 3617; maneb, 3178; in combination, 3093; MBR–CP and MBR–CP–PBR, 355; mercuric chloride, 2933a; meta-sodium, 390g; metham-sodium, 279; methyl bromide, 640, 897, 1026a, 1675, 1886, 1962, 2343, 2356e, f, 2849, 3459c, i, 3594; in combination, 3074; methyl isothiocyanate compound, 1026a; mylone, 694b, 2491, 3594; nabam, 3466; nemagon, 1895; nitrafen, 612; ortho-phaltan, 1156; petroleum growth substances, 612; plantvax, 1852; propazine, 3093; quintozene, 377, 2933a, 3617, 3620; quintozene-Borzesti, 1377g; sistan, 3127; sulphur, 1377g, 3549d; TCTNB, 1374g; temik 10G, 3595a; terraclor, 967, 3436; in combination, 967; thiabendazole, 3117; thiram, 2356g, 2730; trizone, 1319, 3504; unifume, 3595a; vapam, 694b, 1731b, 2491, 3126, 3127, 3594, 3620; in combination, 694b, 2356e, f; vidden D, 694b; vitavax, 3452; vorlex, 613, 1731b; zinc in combination, 3093.
[Soil disinfection], conference on, 2356.
— —, effect of, on microbiological balance, 2356c. on mycorrhizal fungi, 2849.
— —, review of, 3017b.
— —, see also Soil sterilization.
—, *Drechslera halodes* and *D. tetramera* in, saprophytic activity of, 3022.
—, effect of air pollution on, 3309.
—, *Erwinia carotovora* in, effect of sterilization on, 3018.
—, factors affecting antiphytopathogenic potential of, 3365.
— fungi in Hong Kong, 1423; Libya, 191; Poland, 1019; associated with citrus, 191; biological appraisal of, 759; characteristics of, 2356a; competition of, on agar plates, 2070; control, 2356a, 3017a, 3303; degradation of lignin by, 1782; detection and isolation of plant pathogenic, 2087d; effect of heat treatment on, 1428; of herbicides on, 393c; of litter on, 1020; factors affecting, 2356a; inhibition of, by plant toxins, 3366; by *Streptomyces rimosus*, 978d; of *Pythium graminicola* by, 1785; interactions of, with *Macrophomina phaseoli*, 2613; isolation of, 1781, 2069, 3016a, b; relationship between macroflora and, 1019; role of microbic population in survival of, 40; selectivity and toxicity of disinfectants to, 1026a; strip bait for studying, 1018; technique for studying lysis of, 2410.
— fungicides, physical aspects in relation to action of, 986m; technique for evaluating, 2616.
— fungistasis in Pakistan, 3026; factors affecting, 1432, 3730; mechanism of, 1433; sensitivity of spores to, 1431; techniques for investigating, 1432, 3028.
—, *Fusarium* in, in Hong Kong, 1423; U.S.S.R., 2068; effect of dexon on, 1427; of herbicides on, 1027.
—, — *avenaceum* and *F. culmorum* in, technique for isolating, 1781.
—, — *equiseti* in, in Israel, factors affecting, 1466; technique for isolating, 1781.
—, — *javanicum* in, in U.S.S.R., 2484.
—, — *oxysporum* in, in Lower Ivory Coast, 2073; U.S.S.R., 2484; effect of dexon on, 1427; of microbic population on survival of, 40; of oil palms on, 2073.
[Soil, *Fusarium oxysporum*] f.sp. *vasinfectum* in, in U.S.S.R., in relation to cotton wilt, 2484.
—, — *roseum* f.sp. *cerealis* 'Culmorum' in, effect of oats and wheat on, 3430.
—, — *solani* in, effect of fertilizers on, 1555; of Leguminosae on, 2073; propagule assay of, 760.
—, — — f.sp. *phaseoli* in, effect of CO_2 on germination of chlamydospores of, 2911; of carbohydrate amendments on, 2408a, b, c; of nutrients on lysis of, 1425; saprophytic multiplication of, 2615a.
—, *Gibberella fujikuroi* in, in U.S.S.R., 2484.
—, *Glomerella cingulata* in, effect of fungistasis on, 1431.
—, *Helminthosporium* in, effect on taxonomic characters of, 1025.
— micro-organisms in, in Australia and Bismarck Archipelago, 37; India, 439a, b; New Guinea, 37; association of, with root tips, 1023; effect of environment on, 3364a, b; of herbicides on, 2075; of, on plant growth and seed germination, 1424; on *Sclerotinia trifoliorum* on clover, 1173a; on *Sclerotium rolfsii*, 429; factors affecting, 808.
— — on chitin, 3024a, b.
—, *Monilia* in, interaction of, with *Fusarium solani* on potato, 2816.
—, *Mortierella* in, in Canada, technique for detecting, 2411.
—, — *vinacea* in, effect of, on *Corticium solani* and *Fusarium oxysporum*, 1318.
—, *Mucor* in, effect of irrigation on susceptibility to formaldehyde, 978q.
—, — *hiemalis* in, technique for isolating, 1781.
—, Mucorales in, effect of dexon on, 1427.
— mycoflora in U.S.S.R., distribution of, in different layers, 2068.
—, *Ophiobolus graminis* in, disinfection ineffective against, 2584n; technique for isolating, 1781.
—, *Penicillium* in, 2070; in U.S.S.R., 2068; antagonism of, to predacious fungi, 441; effect on taxonomic characters of, 1025; of herbicides on, 1027; of irrigation on susceptibility to formaldehyde, 978q; inhibition of *Fusarium solani* on potato by, 2816; microbial population and survival of, 40.
—, — *funiculosum* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, — *purpurogenum* in, effect of, on respiratory enzymes of pea and wheat, 3360.
—, — *waksmanii* in, effect of, on *Corticium solani* and *Fusarium oxysporum*, 1318.
—, *Phoma exigua* ff.sp. *exigua* and *foveata* in, in England and Scotland, 3546a.
—, — *foveata* and *P. solanicola* in, technique for recovering, 3190.
—, phycomycetes in, inhibition of, by plant toxins, 3366.
—, *Phymatotrichum omnivorum* in, control, 2491.
—, *Phytophthora* in, in U.S.A., 762.
—, — *cactorum* in, effect of herbicides on antagonists of, 2075.
—, — *cinnamomi* in, in Germany, 1374c; factors affecting, 1430; non-survival of, in winter, 1374c; technique for obtaining chlamydospores of, 444.
—, — *nicotianae* var. *parasitica* in, effect of fungistasis on, 1431; survival of, 1943.
—, plant residues in, phytotoxins produced by, 1429.

[Soil], *Pseudomonas phaseolicola* in, effect of soil sterilization on, 3018.
—, *Pyrenochaeta lycopersici* in, associated with tomato brown root rot, 3571.
—, pyrenomycetes in, technique for separating ascospores from, 1422.
—, *Pythium* in, in Canada, 2411; U.S.A., 762; technique for detecting, 2411.
—, — *aphanidermatum* in, in Chile, distribution of, 2902; effect of residues on, 442.
—, — *debaryanum* in, effect of, on *Aphanomyces euteiches* on pea, 1347.
—, — *sylvaticum* in, in U.S.A., 1029.
—, — *ultimum* in, in Chile, distribution of, 2902; effect of chloronitro- and chlorobenzenes on, 2413; of, on *Aphanomyces euteiches* on pea, 1347; factors affecting sporangial germination of, 443; inhibition of, by leachates, 1028.
—, *Rhizobium trifolii* in, 1172.
—, *Rhizopus* in, interaction of, with *Fusarium solani* on potato, 2816.
—, root-nodule endophytes of alder and *Myrica gale* in, 3348.
—, *Sclerotium rolfsii* in, effect of amendments on, 2412; of fertilizers on germinability of sclerotia of, 2071; of *Trichoderma viride* on saccharose activity in, 3368; technique for estimating saprophytic activity of, 2614.
— sterilization against cucumber root rot pathogens, 719; *Erwinia carotovora* on cyclamen, 3315; *E. chrysanthemi* on carnation, 2498; *Fusarium roseum* on carnation, 2356e; *Gibberella fujikuroi* on *Freesia*, 390g; *Nectria radicicola* on cyclamen, 3459c; *Pyrenochaeta terrestris* on onion, 2930; *Thielaviopsis basicola* on cyclamen, 3459c; tomato brown root rot, 3571; *Verticillium* on tomato, 2356f; *V. cinerescens* on carnation, 2356e.
— —, apparatus for, 3017a.
— — by steam, 88, 719.
— — ineffective against *Cylindrocladium scoparium* on spruce, 3243.
—, *Streptomyces* in, in U.S.S.R., production of antibiotics by, 1139, 1140.
—, *Thelephora terrestris* in, isolation of, 3729.
—, *Thielaviopsis basicola* in, effect of amendments on, 2615b; of chitinase on chlamydospore germination of, 1426; of nutrients on lysis of, 1425; propagule assay of, 760.
—, thiram residues in, effect of, on *Pythium ultimum* on pea, 41.
—, tobacco rattle virus in, 394e, 2586e.
—, *Trichoderma* in, effect of dexon on, 1427; of herbicides on, 1027; of irrigation on susceptibility to formaldehyde, 978q.
—, — *hamatum*, *T. piluliferum*, and *T. polysporum* in, antagonism of, to *Fomes annosus* on pine, 348a.
—, — *viride* in, 2070; antagonism of, to *Fomes annosus* on pine, 348a, b; effect of amendments on, 2412; of chloronitro- and chlorobenzenes on, 2413; interaction of, with *Fusarium solani* on potato, 2816.
—, *Trichometasphaeria turcica* in, saprophytic activity of, 3022.
—, *Trichothecium roseum* in, effect of, on *Verticillium dahliae* on cotton, 3447.
—, *Typhula idahoensis* in, survival of sclerotia of, 3409.
—, *Verticillium alboatrum* in, survival of propagules of, 3023.
[Soil, *Verticillium*] *dahliae* in, stimulation of, by tetracycline, 2487; survival of, 40; virulence of, 1137.
Solanaceae, belladonna mottle virus can infect, 2649.
—, citrus exocortis virus on, transmission of, by grafting, 523.
—, *Corynebacterium michiganense* on, 1972.
—, passion fruit woodiness virus can infect, 271.
—, *Phytophthora* on, virulence of, 3611.
—, stolbur virus on, 3611.
α-solanine, fungitoxicity of, 3193.
Solanum, *Corynebacterium michiganense* on, spec. react. to, 1972.
—, potato virus Y on, spec. react. to, 3537.
—, *Puccinia pittieriana* on, in Colombia, 3189.
—, tobacco mosaic virus str. U1 on, spec. react. to, 2547.
— *andigenum*, *Pseudomonas solanacearum* on, 1955.
— *chacoense* as indicator for potato virus Y, 2236.
— *demissum* as indicator for potato viruses A and Y, 1231.
— *melongena*, see Eggplant.
— *phureja*, *Pseudomonas solanacearum* on, resistance to, 1955.
— *rostratum* as indicator for potato virus Y strs., 1948.
— *tuberosum*, see Potato.
Solidago altissima and *S. canadensis*, *Coleosporium asterum* on, in U.S.A., life cycle and development of, 3235.
Sophocarpin, effect of, on pectinase activity and respiration of *Verticillium dahliae*, 1014.
SOPP in combination against fungi on citrus, 2717.
Sorbic acid against *Fusarium* and *Verticillium* on cotton, 3118; *V. dahliae* on cotton, 1138.
**Sorbus aucuparia*, *Erwinia amylovora* on, in Canada, 2562c.
Sordaria fimicola, inhibition of, by potassium cyanide, 36.
— —, spore discharge in, 2967.
Sorghum (*Sorghum vulgare*), *Cercospora sorghi* on, var. react. to, 1113 l.
— chlorosis virus on sorghum in India, characteristics of, 3438.
— concentric ring spot virus on sorghum in S. Africa, technique for isolating, 301.
—, *Colletotrichum graminicola* on, in India, *3099; appressoria in, 3744; relationship of root injury to, 806.
—, *Curvularia* on, in India, 2153; Senegal, 1462; effect of hypochlorite pretreatment on, 2153.
—, effect of seed treatment on viability of seeds in storage, 1113j; of soil micro-organisms on germination and growth of, 1424.
—, *Fusarium* on, in Senegal, 1462.
—, — *oxysporum* and *Gibberella fujikuroi* on, in India, effect of hypochlorite pre-treatment on, 2153.
—, *Gloeocercospora sorghi* on, 594; in India, 1113i; germination and overwintering of sclerotia of, 1536; var. react. to, 1113 l.
—, *Helminthosporium* on, in Senegal, 1462.
*—, *Macrophomina phaseoli* on, in Austria, severity of, 2030.
—, maize dwarf mosaic virus on, 2144; in U.S.A., 2695; effect of K deficiency on, 1113f; effect of, on chloroplasts and photo-

synthesis, 2145b; on yield, 1113f; factors affecting, 2695.
[Sorghum], *Penicillium* on, in Senegal, 1462.
—, *Periconia circinata* on, C.M.I. description of, 3030.
—, *Phoma insidiosa* on, 2154.
—, *Physopella zeae* on, biological control and description of, 152b.
—, pipecolic acid content in relation to disease resistance, 2158.
—, *Pseudomonas rubrilineans* can infect, 804.
—, *Puccinia purpurea* on, var. react. to, 1113 l.
—, *Ramulispora sorghi* not infecting, 807.
—, — — on, var. react. to, 2587a.
— red stripe virus on maize, 2146.
*— — — — — on sorghum in U.S.S.R., 3403.
—, *Sclerospora graminicola* on, in India, 1113p.
—, — *sacchari* on, mode of infection by, 3305c.
—, — *sorghi* on, in India, 1113p; var. react. to, 1113 l, 2587a.
—, *Sphacelia sorghi* on, factors affecting survival of, 2587a; production of dihydroergosine by, 2478.
—, *Sphacelotheca reiliana* on, penetration by, 2477; physiologic specialization in, 167.
—, — *sorghi* on, in Iraq, 166; Nigeria, 2587a; control, 3098; factors affecting, 511; var. react. to, 166, 3098.
—, sugarcane mosaic virus on, 1260, 2250.
*—, *Tolyposporium ehrenbergii* on, in Iran, transmission of, by seed, 3097.
—, *Trichometasphaeria turcica* on, var. react. to, 1113 l.
—, wheat stripe mosaic virus on, in U.S.S.R., 3403.
— *bicolor* var. *technicum*, maize dwarf mosaic virus on, in U.S.A., 2695.
*— *halepense*, *Colletotrichum graminicola* on, in India, 3099.
*— —, *Helminthosporium rostratum* on, in India, 1113g.
— —, maize dwarf mosaic virus on, association between, 2144; effect of, on chloroplasts and photosynthesis, 2145b.
— —, maize mosaic virus on, transmission of, by vectors, 149.
— —, — virus on, in N.S.W., 2032e.
— — mosaic virus on maize, 1106.
— — — +maize stunt viruses on maize, 1106.
— —, sugarcane mosaic virus on, 2250; in U.S.A., 1260.
*— *nitidum*, *Colletotrichum graminicola* on, in India, 3099.
— *sudanense*, see Sudan grass.
— *vulgare*, see Sorghum.
Sowbane (*Chenopodium murale*) mosaic virus, *Chrysanthemum* virus serologically related to, 390k.
— — — carnation 689 str. on carnation, 390i.
— — — *Chenopodium* star mottle str., carnation 689 str. related to, 390i.
Soybean (*Glycine max*), *Alternaria tenuis* on, 3639.
—, bean pod mottle virus alone and+soybean mosaic virus strs. 1 and 2 on, effect of, on seed, 2919.
—, *Cephalosporium gregatum* on, isolation of, 3634.
—, *Cercospora kikuchii* on, in Colombia, 1939; Venezuela, *morphology and symptoms of, 1381g.
—, — *sojina* on, in U.S.A., 2921.
[Soybean], *Cochliobolus carbonum* on, physiology of resistance of, 2333.
—, *Colletotrichum truncatum* on, in Colombia, 1939.
—, *Corticium solani* on, in Colombia, 1939; U.S.A., *3635.
— cotyledon necrosis in U.S.A., 2922.
—, *Diaporthe phaseolorum* var. *sojae* and *Fusarium oxysporum* f.sp. *tracheiphilum* on, in Colombia, 1939.
—, *Glomerella glycines* on, in Colombia, 1939; Rhodesia, *2588a; U.S.S.R., 2920, *3066.
—, *Macrophomina phaseoli* on, in Colombia, 1939.
— mosaic virus on soybean in S. Africa, 1354; Venezuela, 1381m, 2011; control and factors affecting, 1354; morphology and var. react. to, 2011.
— — — strs. 1 and 2+bean pod mottle virus on soybean, effect of, on seed, 2919.
—, *Phakopsora pachyrhizi* on, 1355.
—, phosphorus toxicity to, control, 2578.
—, *Phytophthora cactorum*, *P. megasperma*, and *P. m.* var. *sojae* on, antifungal metabolites produced by, 2335; phytoalexin in relation to, 3666u.
—, pipecolic acid content in relation to disease resistance, 2158.
—, *Pseudomonas glycinea* on, in Yugoslavia, 703; control, 3637; population levels in relation to, 3636; var. react. to, 703.
—, *Sclerospora sorghi* on, in Rhodesia, 2359c.
—, *Sclerotinia sclerotiorum* on, in Colombia, 1939.
—, *Sclerotium rolfsii* on, in Colombia, 1939; susceptibility to, 1810.
—, tobacco ring spot virus on, 1803; transmission of, by seed, 2334.
—, *Verticillium* on, susceptibility to, 478.
*—, — *foexii* on, in U.S.S.R., 3066.
— virus diseases, 1381m.
—, *Xanthomonas phaseoli* var. *sojense* on, in Colombia, 1939; control, 3637; extracellular polysaccharides of, 3638; host-parasite interactions of, 2336.
Sphacelia sorghi on sorghum, 2478, 2587a.
Sphaceloma arachidis on groundnut, 707.
— *murrayae* on *Salix*, 336.
— *persea* on avocado pear, 3167.
Sphacelotheca destruens and *S. reiliana* on cereals, 3013.
— *reiliana* on maize, see Maize.
— — on sorghum, 167, 2477.
— —, physiology of, 2995.
— *sorghi* on sorghum, see Sorghum.
Sphaeropsidales on fruit, 1598.
Sphaeropsis tumefaciens on lime and *ortanique, 2958a.
Sphaerotheca on Ranunculaceae, 539.
— *fuliginea* on cucumber, see Cucumber.
— — on Cucurbitaceae, 1035b, 1364.
— — on squash, 3655.
— — f.sp. *cucurbitacearum* on cucumber, 387.
— *humuli*, see *S. macularis*.
— *macularis* on hop, 3524a.
— — on raspberry, 2219.
— — on Rosaceae, 3731b.
— — on rose, 1401.
— — on strawberry, 1211, 2219.
— *mors-uvae* on currant, see Currant.
— — on gooseberry, 20, 2531, 2773.
— *pannosa* on peach, 1743d.
— — on Rosaceae, 3731b.

[*Sphaerotheca pannosa*] on rose, 3459h.
— — var. *persicae* on peach, 260a, b.
— — — *rosae* on rose, 20, 1164, 2366.
Sphaerulina oryzina on rice, 179.
Spilocaea eriobotryae on loquat, 268.
Spinach (*Spinacia oleracea*), cucumber mosaic virus on, in Venezuela, susceptibility to, 3306.
— diseases, control, 3261.
*—, *Fusarium oxysporum* f.sp. *spinaciae* on, in U.S.A., 2316.
—, ozone injury to, 3702.
—, *Peronospora farinosa* on, f.sp. *spinaciae* proposed for, 1039.
—, *Pyrenochaeta terrestris* on, 2119.
— extracts, inhibition of potato virus X ring spot str. by, 470b; of radish mosaic virus by, 471.
Spinacia oleracea, see Spinach.
Spongospora subterranea on potato, 1376d, 1650, 2029.
— — transmitting potato mop-top virus, 3301k.
Sporidesmium sicynum on fig, 1213.
Sporoschisma mirabile on fruit, 1598.
Sporotrichum carnis, inhibition of, by quintozene, 1173c.
— — on fungal sclerotia, 1173b.
Spraying apparatus, 416, 1888, 2960e.
Spruce (*Picea*), *Arceuthobium americanum* on, *Glomerella cingulata* parasitizing in Canada, 337.
—, *Armillaria mellea* on, in Germany, 2882b.
—, *Aspergillus fumigatus* and *A. niger* on, effect of, on seedlings of, 1326.
—, *Bifusella crepidiformis* on, in U.S.A., 358.
*—, *Ceratocystis bicolor* on, in Europe, 646.
—, — *europhioides* and *C. penicillata* on, in Germany, isolation of, from *Ips*-infested bark, 646.
—, *Coniophora puteana* on, rate of decay of, 3244.
—, *Coryne sarcoides* on, in Germany, 2882b.
—, *Cucurbitaria piceae* on, 359.
—, *Cylindrocladium scoparium* on, control and factors affecting, 3243.
— damping-off in Canada, control, 341.
— decay, evaluation of, 2882a.
—, effect of captan-50W on seed germination of, 2857; of pesticides on pollen germination of, 342.
—, *Fomes annosus* on, in Germany, 2882b; U.S.S.R., 1329; control, 1329; effect of resin on resistance to, 3229; factors affecting, 1329, 2882b; technique for studying, 3229.
—, — *fomentarius* on, biology of, 680, 1702; control, 1702.
—, — *pini* on, in U.S.S.R., 673.
—, — *pinicola* on, in U.S.S.R., 673; action of, on wood components, 674.
—, fungi on, in U.S.S.R., 673; effect of, on viability, 3219a.
—, *Fusarium* on, factors affecting, 3593.
—, — *bulbigenum* var. *blasticola* on, lysis of, by soil bacteria, 3242.
—, *Isthmiella crepidiformis* on, in Canada, 2562e.
*—, *Lophodermium darkeri* on, in N. America, 643b.
—, — *macrosporum* and *L. picea* on, in Germany, effect of light on, 357.
*—, *Lophophacidium hyperboreum* on, in Canada, 2562e.
—, *Mucor ramannianus* on, effect of root secretions on, 1326.
[Spruce] mycorrhiza, effect of simazine on, 749.
—, *Penicillium* on, effect of root secretions on, 1326.
—, — *canescens*, *P. cyclopium*, *P. martensii*, and *P. purpurogenum* on, effect of, on seedlings, 1326.
—, *Phacidium abietis* on, 338.
—, *Polyporus tomentosus* on, in Canada, 928, 1315; comparative susceptibility of roots to, 928; rate of decay of, 3244.
—, — — var. *circinatus* on, in Canada, 1315.
—, *Poria albidofusca* on, in U.S.S.R., 927.
—, *Rhizoctonia* on, in Norway, 1695.
—, *Rhizosphaera kalkhoffii* on, in Germany, effect of light on, 357.
— root rots in U.S.S.R., 673.
—, *Scleroderris lagerbergii* on, sporulation of, 2879.
—, *Thelephora terrestris* on, 3729.
—, *Valsa* on, in Canada, 1315.
Squash (*Cucurbita maxima*), cowpea chlorotic mottle virus on, specific infectivity of, 3392.
—, *Erysiphe cichoracearum* on, effect of furidazole and thiabendazole on, 1819.
—, *Fusarium solani* f.sp. *cucurbitae* on, degradation of pectic substances by, 1367, 2583.
— mosaic virus, serotypes of, 2348.
—, *Mycosphaerella melonis* on, in New Zealand, 2943.
—, *Pseudoperonospora cubensis* on, in S. Africa, 969.
—, *Sphaerotheca fuliginea* on, control, 3655.
Stachybotrys on cellulose and paper, 2988.
— *atra*, inhibition of *Fomes igniarius* and *Polyporus glomeratus* on *Acer saccharum* by, 649.
Stachytarpheta indica, sandalwood spike virus on, transmission of, by sap, 1312.
Stagonospora curtisii on *Narcissus*, 390f.
— *recedens* on clover, 1168b.
Statice, see *Limonium*.
Steam/air mixture for soil sterilization, 719.
Stemphylium botryosum, see *Pleospora herbarum*.
— — f.sp. *capsicum* on *Capsicum*, 3659.
— — f.sp. *lycopersici* on tomato, 3217.
— *consortiale* on apple, 2752.
— *floridanum* on ornamentals, 3346.
— *ilicis*, primary luminescence of, 460.
— *radicinum* on carrot, 2342, 3299i.
— *solani*, conidial formation in, 2405.
— —, distinction of *S. botryosum* f.sp. *capsicum* from, 3659.
— — on *Capsicum*, 85.
— — on tomato, 85, *3066.
**Stenella aegles* on *Aegle marmelos*, 2798.
Stenotaphrum secundatum, *Ustilago affinis* on, in Brazil, 1168a.
Stereum frustulosum on beech, 2889.
— — and *S. gausapatum* on timber, 1993.
— *hirsutum* on ornamentals, 1147.
— — on trees, 1994.
— *purpureum* on peach, 396.
— — on plum, 1923.
— — on pome fruit, 396.
— — on stone fruit, 1613.
— *sanguinolentum*, decomposition of cellulose by, 2406.
— — on *Abies grandis*, 2858.
— — on *A. lasiocarpa*, 2859.
— — on timber, 2285.
— *taxodii* on *Taxodium distichum*, 2883.

Stigmina carpophila in Chile, 82.
— — on almond, 1197, 2759.
— — on peach, 396, 2759.
— — on stone fruit, 1197.
Stilbaceae, key to, 3037.
Stolbur virus, *Chrysanthemum* green flower and *Mentha* enation viruses serologically related to, 3526.
— —, hosts of and transmission of, by vectors, 1451.
— — on *Capsicum* and eggplant, 2100.
— — on potato, 288, 2100, 2427.
— — on Solanaceae, 3611.
— — on tomato, 1745f, 2427.
Stone fruit, *Agrobacterium tumefaciens* on, mode of infection and symptoms of, 3157.
— —, *Blumeriella* on, control, 1743g.
— —, *Ceratocystis fimbriata* on, control, 3496.
— — diseases in Germany, causing bark and wood injury, 848.
— —, *Polystictus cinnabarinus* and *P. versicolor* on, symptoms of, 1613.
— —, *Pseudomonas syringae* on, in U.S.S.R., 2209, 2747.
— —, *Rhizopus stolonifer* on, mode of infection and symptoms of, 3157.
— —, rose mottled mosaic virus on, transmission of, mechanically, 2765.
— —, *Schizophyllum commune* on, symptoms of, 1613
— —, *Sclerotinia fructicola* on, in N.S.W., 2032q; mode of infection and symptoms of, 3157.
— —, *Stereum purpureum* on, symptoms of, 1613.
— —, *Stigmina carpophila* on, in U.S.S.R., 1197.
*— —, *Tranzschelia pruni-spinosae* var. *discolor* on, in Hungary, 1743h.
— —, *Valsa* and *Verticillium* on, in U.S.S.R., 2747.
— —, *Verticillium alboatrum* on, mode of infection and symptoms of, 3157.
— —, — *dahliae* on, in U.S.S.R., periodicity of appearance of, 1198.
— — virus diseases, development and symptoms of, 2747.
'Stop scald', see Ethoxyquin.
Storage disorders of apple, 1005, 1605, 2754; beet, 2903; carrot, 1005; citrus, 1745c, 2483; fodder, 2584i; fruit, 847; grapevine, 276; *Lablab niger*, 2918; onion, 1743u, 3289; pear, 2754; plum, 1005; potato, 1747h; timber, 2891, 2892; tomato, 1005; vegetables, 1465.
Strawberry (*Fragaria vesca*), *Arabis* mosaic virus on, effect of chloropicrin and DD on, 859.
—, *Botrytis cinerea* on, in Germany, 2029; control, 394a, 2219, 3163, 3164; effect of mulches on, 3163; of fungicides on, 2532, 3301a; of maxicrop on, 1783; of pollen grains on growth of, 3350.
—, clover phyllody virus on, time of infection of, 2652.
—, *Colletotrichum fragariae* on, overwintering of, 2533.
—, *Corynebacterium fascians* on, *Aphelenchoides fragariae* associated with, 1626; biology of, 861; control, 1929.
— crinkle virus on *Fragaria vesca*, 1928.
— — — on strawberry in S. Africa, 1624; Yugoslavia, study on, 265; production of virus-free plants, 3162b; strs. and symptoms of, 1928; transmission of, by vectors, 265, 1624, 1928; var. react. to, 265.
[Strawberry crinkle virus] str.+strawberry mottle virus str. on strawberry, transmission of, by vectors, 579.
*—, *Dendrophoma obscurans* on, in Hungary, 1743x.
—, *Diplocarpon earlianum* on, nature of resistance to, 860.
—, *Endogone* on, forming mycorrhiza, 3712.
*—, *Gnomonia fragariae* on, in Hungary, 1743x.
— green petal virus on strawberry, study on, 1745f.
—, inhibition of potato virus X ring spot str. by extracts of, 470b.
— latent A virus on strawberry, production of virus-free plants, 3162b.
— — ring spot virus on celery, 3299d.
— — — — — — on *Mentha arvensis* and raspberry, 3508.
— — — — — — on rhubarb, 3294.
— — — — — — on rose, 1060.
— mild yellow edge virus on strawberry in S. Africa, latent period of, in vector, 1624.
— mottle virus on strawberry, hosts of, 1625; transmission of, by vectors, 395h, 579, 1625.
— — — str.+strawberry crinkle virus str. on strawberry, transmission of, by vectors, 579.
—, mycorrhiza of, 3669d; culture of phycomycetes forming, 3712.
—, *Mycosphaerella fragariae* on, control, 2781.
—, — *ligulicola* on, effect of leaf washings from, 1905.
—, *Pestalotia longi-setula* on, in Israel, symptoms of, 2780.
—, *Phytophthora fragariae* on, effect of dexon on, 3301c.
—, *Rhizoctonia fragariae* on, causing black root rot and forming mycorrhiza, 3669d.
—, *Sphaerotheca macularis* on, control, 2219; var. react. to, 1211.
— vein chlorosis virus on strawberry, production of virus-free plants, 3162b.
—, *Verticillium alboatrum* on, relationship of tannins, polyphenolics, and reducing sugars to, 3511a, b.
— virus diseases, 579; in Venezuela, 394f; production of virus-free plants, 3162b; testing for, on indicator plants, 264, 1210; transmission of, by vectors, 394f.
—, *Xanthomonas fragariae* on, in U.S.A., systemic invasion by, 862.
— yellow edge virus on strawberry, production of virus-free plants, 3162b.
Streptocycline against *Xanthomonas coracanae* on *Eleusine coracana*, 3101; *X. oryzae*, 1113s, 3339.
—, inhibition of *Pseudomonas* and *Xanthomonas* by, 3317.
— in combination as seed treatment for rice, 1113s.
Streptomyces aereoverticillatus in soil, 1140.
— *albidus* in soil, 1139.
— *albus*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1139.
— *anandi*, pentaene G8 from, 422.
— *anulatus*, antagonism of, to fungi and bacteria, 421.
— — in soil, 534b.
— *antibioticus*, *S. citreus*, and *S. erythreus*, antagonism of, to *Fomes annosus*, 1794.
— *fungicidicus* in soil, 1140.

[*Streptomyces*] *globisporus* and *S. lavendulae* in soil, 1139.
— *levoris*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1140.
— *netropsis*, antagonism of, to *Fomes annosus*, 1794.
— — in soil, 1139, 1140.
— *reticuli* in soil, 1139.
— *rimosus*, antagonism of, to *Fomes annosus*, 1794.
— —, inhibition of soil fungi by, 978d.
— *ruber* in soil, 1139.
— *scabies* on potato, see Potato.
— *violaceus* in soil, 1139.
Streptomycetes, fundamental genetics of, Hungarian book on, 1753.
Streptomycin against *Corynebacterium fascians* on strawberry, 1929; *Erwinia amylovora* on apple, 2751; *Xanthomonas phaseoli* on bean, 397c, 1377h.
—, effect of, on *Fomes tremulae*, 2388; on *Xanthomonas campestris*, 1338.
—, inhibition of pea Wisconsin streak virus by, 2002.
— in combination against *Pseudomonas lachrymans* on cucumber, 996; *Xanthomonas campestris* on cabbage, 996.
— A, effect of, on maize, 2045.
— sulphate, effect of, alone and in combination, on *Pseudomonas syringae* on pear, 2757.
Stylosanthes, groundnut rosette virus on, in Malawi, symptoms of, 960.
— *mucronata* transmitting groundnut chlorotic rosette virus, 3640.
Sucrose, effect of, on growth of *Monilia* and *Trichoderma* in mushroom compost, 390h.
*Sudan grass (*Sorghum sudanense*), *Colletotrichum graminicola* on, in India, 3099.
*— —, *Helminthosporium rostratum* on, in India, 1113g.
— —, maize dwarf mosaic virus on, in U.S.A., 2695.
— —, *Pseudomonas andropogonis* on, 1171.
*— —, *Ramulispora sorghi* on, in India, 807.
— —, *sorghum red stripe and wheat stripe mosaic viruses on, in U.S.S.R., 3403.
Sugar beet, see Beet.
Sugarcane (*Saccharum officinarum*), *Ceratocystis paradoxa* on, in Mauritius, 3198d; control, 3198d; effect of storage on susceptibility to, 884; host-parasite relationships in, 3201; soil micro-organisms in relation to, 1263.
—, *Cercospora koepkei* on, sporulation of, in culture, 1658.
— chlorotic streak virus on sugarcane in Philippines, *302, 1261; control, 882b; transmission of, by cuttings, and var. react. to, 1261.
*—, *Colletotrichum graminicola* on, in India, 3099.
*—, *Dimeriella sacchari* on, in Philippines, 302.
— diseases in India, 3199; Réunion, 979; S. Africa, 1259b; the world, 2554; control, 2554, 3198c; symptoms of, 1259b.
*—, *Drechslera sacchari* on, in Malawi, 1747d.
—, — *stenospila* on, in Senegal, 1462; cultural variants of, 1264.
—, effect of thiram on, 3198e.
— Fiji disease virus on sugarcane in Madagascar, 3065.
*—, *Fusarium* arrow rot on, in Réunion, 979.
*[Sugarcane], *Gibberella fujikuroi* on, in Argentina, ?advanced stage of 'Pokkah boeng', 3553.
*—, *Glomerella tucumanensis* on, in Rhodesia, 2359a; appressoria in, 3744; effect of exudates on conidial germination in, 2556; karyology, hyphal fusions, and new isolate of, 3552; methods for rating for resistance to, 303; production of enzymes by conidia of, 1659; similarity of *Colletotrichum graminicola* on sorghum to, 3099; sporulation of, on resistant and susceptible vars., 2555; spread of, in leaves, 2827.
— grassy shoot virus on sugarcane, association of, with Mn deficiency, 3200.
—, *Leptosphaeria michotii* on, C.M.I. description of, 1035a.
—, — *sacchari* on, in Ivory Coast, 2826; C.M.I. description of, 1035a.
*—, — *taiwanensis* on, in Philippines, 302.
—, maize dwarf mosaic virus on, in U.S.A., symptoms of different from sugarcane mosaic virus, 300.
*—, *Marasmius sacchari* on, in Rhodesia, 2359a.
— mosaic virus, maize mosaic virus in India a str. of, 148.
— — — on *Rottboellia exaltata*, 2250.
— — — on sorghum, 1260.
— — — on *Sorghum halepense*, 1260, 2250.
— — — on sugarcane, 1260; in Madagascar, 3065; S. Africa, 301; U.S.A., 2825; factors affecting, 2250; properties of, 301; resistance to, 1259a; serological relationships of, 301; technique for isolating, 301; transmission of, to sugarcane, 2250; var. react. to, 2825.
— — — Johnson grass str., *Sorghum halepense* mosaic virus on maize ?related to, 1106.
— — — sub-str. on sugarcane in India, 883.
—, *Numicia viridis* on, fungal parasites associated with, 1259b.
—, *Pseudomonas rubrilineans* can infect, 804.
*—, — *rubrisubalbicans* on, in Malawi, 1747d.
*—, *Puccinia erianthi* on, in Rhodesia, 2359a.
—, — *kuehnii* on, in Madagascar, 3065.
—, *Pythium* on, testing resistance to, 2249c.
*—, — *?acanthicum* on, in Hawaii, 2249b.
— ratoon stunting virus on sugarcane in Hawaii, 2249a; India, 3199; Queensland, 882a; Réunion, 3551; detection of, 1262; effect of heat treatment on, 1259a, 3551; var. react. to, 882a, 2249a.
—, *Sclerospora macrospora* on, in S. Africa, 1259b.
—, — *sacchari* on, technique for inoculating, 1266.
— striate mosaic virus on sugarcane, inoculation of, 882c.
—, *Ustilago scitaminea* on, in Hong Kong, 3668d; India, 1265; Malawi, 399c; Rhodesia, 2251; effect of, on juice quality, 1265; factors affecting, 3202; heterothallic mating pattern in, 304; longevity of, 619; testing for resistance to, 1259a, 2358a; var. react. to, 2251.
— white leaf disease, ?*Mycoplasma* causing, 3555.
—, *Xanthomonas albilineans* on, in Malawi, 1747c; Queensland, 882d; Rhodesia, 2251, 2359*a, d; U.S.A., 3554; control, 882d; var. react. to, 1267, 2251.
—, — *vasculorum* on, in Mauritius, 3198a, b; Réunion, 3551; distinction between isolates from *Thysanolaena maxima* and, 3198b; strs. of, 3551.

Sulphanilamide against *Cochliobolus miyabeanus* on rice, 177.
Sulphasomidine against *Puccinia hordei* on barley, 2686.
—, toxicity of, to barley, 2686.
Sulphathiozole against *Puccinia hordei* on barley and toxicity of, to barley, 2686.
Sulphur against *Botrytis cinerea* on grapevine, 3173; *Elsinoe veneta* on raspberry, 1377n; *Erysiphe graminis* on cereals, 3407; *Fusarium* on grapevine, 3173; *Microsphaera alphitoides* on oak, 910; *Mycosphaerella arachidis*, 3d, 1356; *Oidium heveae*, 1258; *Peronospora destructor* on onion, 709; *Podosphaera leucotricha*, 1182, 1918, 2198; potato tuber diseases, 1376d; *Rhizoctonia* on grapevine, 3173; *Sphaerotheca macularis* on strawberry, 2219; sulphur deficiency in coconut, 2542a; *Uncinula necator*, 397g, 2791; *Venturia inaequalis*, 2198.
— as soil disinfectant, 1377g, 3549d.
— deficiency in coconut, 2542a, b.
—, effect of, on sporulation of *Fusarium udum*, 374.
— in combination against *Plasmopara viticola*, 2792; *Podosphaera leucotricha*, 1182.
— — — on apple, cucumber, and rose, 19.
—, colloidal, against *Ascochyta rabiei* on *Cicer arietinum*, 2009; *Elsinoe ampelina*, 1634, 3171; *Erysiphe cichoracearum* on cucumber, 972, 2345; *E. c.* f.sp. *cucurbitacearum* on cucumber, 387; *E. graminis* on cereals, 3407; *Microsphaera alphitoides* on oak, 910; *Podosphaera leucotricha*, 1182, 2192; *Sphaerotheca fuliginea* f.sp. *cucurbitacearum* on cucumber, 387; *Uncinula necator*, 584.
—, —, in combination against *Cercospora* on grapevine, 274; *Erysiphe cichoracearum* on cucumber, 2344; *Uncinula necator*, 274, 2792.
— dioxide against *Botrytis cinerea* on grapevine, 276.
— — injury to crops in U.S.A., 780, 3700a, 3701.
— — — to potato, 298.
Sulphuric acid for killing potato haulms, 1235c.
Sunflower (*Helianthus annuus*), *Albugo tragopogonis* and aster yellows virus on, in Argentina, 1222.
—, *Botrytis cinerea* on, in Hungary, aetiology and var. react. to, 1940.
— diseases in Argentina, 1222; Italy, control, 1807.
—, *Erysiphe cichoracearum* on, in Argentina, 1222; adaptation of, to heat, 1771.
— 'head drop', *Helminthosporium helianthi*, and *Itersonilia perplexans* on, in Argentina, 1222.
—, *Macrophomina phaseoli* on, in Argentina, 1222; Senegal, 83; production of toxin by, 978j; symptoms of, 83.
— mosaic virus on sunflower in Argentina, 1222.
*—, *Mycosphaerella ligulicola* on, 1154; effect of leaf washings on, 1905.
— 'pesta negra' and *Phoma oleracea* var. *helianthi-tuberosi* on, in Argentina, 1222.
*—, *Phyllosticta helianthi* on, in U.S.S.R., 3066.
—, *Plasmopara halstedii* on, in Argentina, 1222; Iran, 3063c; U.S.S.R., 2231; biology of, 1941; control and survival of oospores of, 2231.
—, *Pseudomonas solanacearum* on, in Bulgaria, penetration of, 2594.
[Sunflower], *Puccinia helianthi* on, in Argentina, 1222; adaptation of, to heat, 1771; physiologic races of, 9781; production of teliospores on detached leaves of, 978k; technique for inoculating, 1445; tissue culture of, 1581.
—, *Pyrenochaeta terrestris* on, 2119.
—, *Sclerotinia minor*, *S. sclerotiorum*, and *Sclerotium rolfsii* on, in Argentina, 1222.
—, *Verticillium* on, apparatus for detecting, 1136.
—, — *dahliae* on, in Argentina, 1222.
Sweet corn, see Maize.
— potato (*Ipomoea batatas*), *Botryodiplodia tubericola* on, 2248.
— —, *Ceratocystis fimbriata* on, 2248; control, 2819; callus tissue in, 3547; enzymes of, 1656.
— —, fungi on floral parts, 3548.
— —, *Fusarium batatatis* and *F. hyperoxysporum* on, 2248.
— — 'little leaf' virus on sweet potato in Papua and New Guinea, transmission of, 879.
— —, Manual for cultivation of, 2248.
— —, *Monilochaetes infuscans* on, control, 2819.
— — virus diseases, 1381m.
Symposia, see Conferences and Reports.
Synchytrium endobioticum on potato, see Potato.
— —, technique for staining spores of, 60.
Syringa vulgaris, see Lilac.
Syringomycin, effect of, on *Pseudomonas syringae* on peach, inhibition of *Geotrichum candidum* by, and production of, by *Pseudomonas syringae*, 1203.

2,4,5-T, use of, for poisoning rubber root stumps, 1257.
T–148, T–186, and T–191 against *Botrytis cinerea* on grapevine, 3172.
Tangelo [*Citrus* hybrid], citrus stubborn disease virus on, symptoms of, 187.
Tangerine, see Orange.
Tannic acid, elimination of soil fungi by, 1018.
Tannins, effect of, on *Fusarium solani* f.sp. *phaseoli* and *Verticillium alboatrum*, 1775.
Taphrina cerasi on cherry, 2032d.
— *deformans* on almond, 2759, 2770.
— *maculans* on *Curcuma amada*, 870.
— — on turmeric, 870, 2232, 2801.
*— *polyspora* on *Acer tataricum* and **T. ulmi* on elm, 1680.
Tar oil against *Sphaerotheca mors-uvae* on currant, 1375q.
— vapour injury to plants, 1072.
Taxodium distichum, *Stereum taxodii* on, pathogenicity of, 2883.
Taxus baccata, see Yew.
TCPA, effect of, on *Ceratocystis ulmi* on elm, 2848.
TCTNB against *Fusarium oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g.
Tea (*Camellia sinensis*), *Corticium invisum* on, in India, 3203.
— diseases, control, 1268, 2430.
—, *Exobasidium vexans* on, in Ceylon, 1960; control, 620b, 621c, 1268, 1960; method for forecasting, 1269.
—, *Hypoxylon serpens* on, in India, 2655; eradication of, by pruning, 621b.
—, *Phomopsis theae* on, control, 1268; factors affecting, 1961.
—, *Poria hypobrunnea* on, in India, 3203; antagonism of *Penicillium* and *Trichoderma*

viride to, 1962; control, 620a, 1268, 1962, 3203; factors affecting, 1962.
[Tea], *Rosellinia arcuata* on, control, 1962.
—, *Tunstallia aculeata* on, in India, 2655; control, 3203.
Teak (*Tectona grandis*), *Fusarium solani* on, in Tanzania, causing pink staining, 3591.
Technique (see also Apparatus) for **comparing** hyphal cells of *Pyrenochaeta terrestris*, 2632; **controlling** soil temp., 457; **culturing** *Alternaria cuscutacidae*, 3046; *Endogone* from strawberry mycorrhiza, 3712; fungi in soil culture jars, 2418; Uredinales, 773; *Valsa cincta*, 3715; **detecting** antigen inhibition of potato virus X, 289; beet yellows virus on beet, 366; *Ceratocystis ulmi* on elm, 651; clover viruses, 3482; micro-organisms by infrared photography, 2417; morestan residues, 2384; *Mortierella* in soil, 2411; oil deposits against beet virus vectors, 367; *Penicillium claviforme* and *P. martensii* on grapevine, 3523; plant viruses, 1457; *Plasmodiophora brassicae* on rape, 938; potato viruses, 1224b, 3538; *Pythium* in soil, 2411; serological differences between barley yellow dwarf virus strs., 1078; strawberry viruses on indicator plants, 264; tobacco rattle virus in soil, 2586e; viable microcolonies of bacteria, 2091; viable spores of *Septoria apiicola* on celery seed, 1734; of *Ustilago nuda* on barley and wheat seed, 2444; **differentiating** between races of *Phytophthora fragariae*, 2779; *Verticillium alboatrum*, *V. dahliae*, and *V. tricorpus*, 2658; **dispersing** fungus spores in the glasshouse, 3042; **establishing** single conidial lines of *Erysiphe polygoni*, 2096; **evaluating** antibiotic activity of phytoactin, 3340; cumulative spore germination, 772; eggplant little leaf disease, 3660; **evaluating fungicides**, 310; against *Botrytis cinerea*, 2357j; *Corticium solani* on cotton, 2597; *Leptosphaeria salvinii*, 3336; *Pseudoperonospora humuli* on hop, 1937; *Ophiobolus graminis* on wheat, 2584o; **evaluating** moisture content of fungicides, 3334; pathogenicity of *Phytophthora* to tomato, 1292; penetration of fungicides in plant tissues, 3329; potato breeding material, 1224a; *Pseudomonas phaseolicola* on bean, 1375v; **evaluating resistance** of apple to fungi, 3153; cacao to *Ceratocystis*, 1470b; to *Phytophthora palmivora*, 1470c; cotton to *Verticillium alboatrum*, 825; to *V. dahliae*, 208; potato to *Erwinia atroseptica*, 1956; rice to *Pyricularia oryzae*, 1118a; sugarcane to *Ustilago scitaminea*, 1259a; tomato to *Alternaria solani*, 3669e; **evaluating** saprophytic activity of *Sclerotium rolfsii* in soil, 2614; sensitivity of fungus spores to heat, 2635; soil fungicides, 2616, 3305a; spore composition in *Plasmopara viticola*, 1374p; spray efficiency, 1888; timber preservatives, 3250; treated seeds, 1447; viruses by photometry, 394g; **examining** fungi from timber, 2633; **extracting** N compounds from conidia of *Colletotrichum lagenarium*, 3725; **forecasting** crop losses from disease, 1746a; outbreaks of *Phytophthora infestans*, 294; *Polystigma rubrum* on plum and *Venturia inaequalis*, 1916; **identifying** *Corticium solani* in soil, 3669a; fungi on timber, 2887; lettuce mosaic virus, 384; **inoculating** barley with *Ustilago nuda*, 2443; cotton with *Fusarium oxysporum* f.sp. *vasinfectum*, 1567; grapevine with viruses, 582; groundnut with *Mycosphaerella arachidis* and *M. berkeleyi*, 1729; maize with *Fusarium*, 1526; with maize dwarf mosaic virus, 1513a, b; with *Ustilago maydis*, 2149; rice with *Corticium sasakii*, 1537c; with *Xanthomonas oryzae*, 1537d; sugarcane with *Sclerospora sacchari*, 1266; sunflower with *Puccinia helianthi*, 1445; tobacco with *Peronospora tabacina*, 1282; tomato with *Colletotrichum coccodes*, 3669f; wheat with *Puccinia graminis*, 1445; with *Ustilago nuda*, 2443; *Xiphinema index* with grapevine fanleaf virus, 2537; **isolating** *Aspergillus flavus* from groundnut and soil, 58; *Cephalosporium gregatum* from soybean straw, 3634; *Ceratocystis fimbriata*, 1446; chlamydospores of *Phytophthora cinnamomi*, 444; conidia of *Cercospora beticola*, 368; *Erwinia carotovora*, 3681; mushroom virus particles, 1740; *Phoma foveata* and *P. solanicola* from soil, 3190; *Phytophthora* spp. from *Hevea* rubber, 1657; *Sclerotium cepivorum* from onion, 2933b; single spores of *Mycosphaerella arachidis* and *M. berkeleyi*, 1729; soil fungi, 1781, 3016a, b; sugarcane mosaic virus strs. from sorghum and sugarcane, 301; thermophilic fungi, 3674; *Thelephora terrestris*, 3729; **labelling** *Ceratocystis ulmi* with carbon, 653; **making** a microhumidity chamber, 2634; **measuring** plant virus synthesis, 1049; sporulation of *Aphanomyces cochlioides* on barley residues, 440; transmission of *Corynebacterium michiganense* and *Xanthomonas vesicatoria* through tomato seed, 2843; **preparing** agar tests in seed health investigation, 2094; antiserum against stolbur virus, 2427; against tulip breaking virus, 2508; against wheat striate mosaic virus, 2448; inoculum from sclerotia of *Claviceps purpurea*, 2095; **preserving** viability of fungus cultures, 2093, 3044, 3045; **producing** different spore forms of *Fusarium oxysporum* f.sp. *melonis*, 1374f; sporangia of *Phytophthora citrophthora*, 2636; virus-free plant material, 249, 1062; **purifying** potato aucuba mosaic virus, 1646; rice tungro virus, 1116; tobacco mosaic virus, 779; **separating** ascospores of pyrenomycetes from soil, 1422; ascospores and diploid cells of *Saccharomyces cerevisiae*, 2088; pathogenic bacteria from intercellular leaf tissue, 2373; 28 S RNA from turnip yellow mosaic virus, 3049; **spraying** coffee against *Glomerella cingulata*, 2725; potato against *Phytophthora infestans*, 1235a; **staining** Agaricales, 56; spores of *Synchytrium endobioticum*, 60; **studying** *Fomes annosus* on Coniferae, 3229; fungi growing in a translucent particulate matrix, 2966; on cotton roots, 3121; inhibition of parasitic activity of *Ophiobolus graminis* in field soils, 125; lysis of cell walls of fungi in soil, 2410; soil fungistasis, 1432; spore deposition in crops, 2584h; spore germination of *Sclerotinia laxa*, 59; **synthesizing** mycorrhiza between pine and *Tuber maculatum*, 3708; **transmitting** coconut lethal yellowing, 1637; potato viruses by grafting, 286.
Tectona grandis, see Teak.
Teepol, effect of, on *Hemileia vastatrix* on coffee, 1559.
Telone PBC against *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 2356i; *Thielaviopsis basicola* on tobacco, 1285.

Temik 10G as soil disinfectant, 3595a.
Tephrosia vogelii, alfalfa mosaic virus and tomato aspermy virus on, transmission of, 3054.
Terabol, see Methyl bromide.
Terfezia leonis in U.S.S.R., 1373.
Termil against *Botrytis cinerea* on *Cattleya* and *Cymbidium* and toxicity of, 2504.
Terminalia tomentosa, decay resistance of, 677.
Terraclor against *Corticium solani*, 38; as soil disinfectant, 38, 967, 3436.
— in combination against *Corticium solani* and *Sclerotium rolfsii* on groundnut, 1731a.
Terrazole against *Phytophthora capsici* on *Capsicum*, 2949.
— in combination against *Corticium solani* and *Sclerotium rolfsii* on groundnut, 1731a.
Tetrachlone against *Erysiphe cichoracearum* on cucumber, 386.
Tetrachloro-*o*-cresol against *Pezicula malicorticis* on apple, 564.
Tetrachloroisophthalonitrile against *Helminthosporium heveae*, 880c; *Phytophthora infestans* on potato, 607.
Tetracycline, inhibition of *Streptomyces* on potato by, 1252.
—, stimulation of *Verticillium dahliae* in soil by, 2487.
— hydrochloride against mulberry dwarf virus on mulberry, 656.
Tetragonia expansa, carnation mottle virus str. on, differentiation of str. on carnation from, 3463.
— —, *Iris* mosaic virus on, 2183.
1,2,3,4-tetrahydronaphthalene against *Agrobacterium tumefaciens* on fruit, and *Pseudomonas savastanoi* on olive, 3322.
Tetranychus urticae in relation to plant viruses, 70.
Tetra sodium pyrophosphate against *Botrytis*, *Penicillium expansum*, and *Rhizopus stolonifer* on cherry, 1925.
Thalictrum, *Puccinia recondita* on, 3417; in N. America, susceptibility to, 2126.
— *speciosissimum*, *Puccinia recondita* on, in Portugal, 493.
Thallophytes, review and taxonomy of, 1030.
Thecodiplosis brachyntera, association of, with *Cenangium ferruginosum* on pine, 346.
Thelephora terrestris in soil, 3729.
— — on pine, forming mycorrhiza, 425.
— — on spruce, 3729.
Theobroma cacao, see Cacao.
Thiabendazole against *Ceratocystis paradoxa* on pineapple, 3513; *Cercospora beticola*, 368; *Erysiphe cichoracearum* on squash, 1819; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Nectria galligena* on apple, 2205; *Nigrospora musae* on banana, 2032r; *Penicillium* on lemon, 197; *P. digitatum* and *P. italicum* on citrus, 3442; *Peronospora farinosa* on beet, 2584r; *Pezicula malicorticis* on apple, 2205; *Ramularia beticola* on beet, 2584r; *Sclerotinia sclerotiorum* on bean, 1352; *Trichoseptoria fructigena* on apple, 2205; *Verticillium cinerescens* on carnation, 3128; as seed treatment for cereals, 1819; as soil disinfectant, 3117.
Thiabenzole against oil palm leaf diseases, 3181.
Thiazolidin-1,3-thion-2 as seed treatment for wheat, 2446.
Thiazone against *Plasmodiophora brassicae* on cabbage, 1336.
Thibenzole against *Fusarium oxysporum* and *F. solani* on oil palm, 3532.
Thielaviopsis basicola, C.M.I. description of, 3030.
— — in soil, see Soil.
— — on bean, 2005, 2615b.
— — on cotton, 527, 528.
— — on *Cyclamen*, 1156, 3459c.
*— — on flax, 2586a.
— — on *Nicotiana debneyi* and pea, 978n.
— — on *Poncirus trifoliata* and orange, 1884.
— — on tobacco, see Tobacco.
— — + *Verticillium alboatrum* on cotton, 528.
Thioaceto-hydroxamic acids, fungitoxicity of, 994.
Thiocarbamates in combination against *Peronospora tabacina*, *Pseudomonas angulata*, and *P. tabaci* on tobacco, 2834.
Thiodyl as seed treatment for potato, 1648.
?Thiolutin against *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 3697.
Thionazin, residues of, 390r.
Thiosol against *Oidium* on tomato, 2836.
Thiouracil, effect of, on potato virus X and tobacco mosaic virus on tomato, 2108; on tobacco leaf curl virus on tomato, 634.
Thiram, adaptation of *Corticium solani* on cotton and potato to, 420.
— against *Ascochyta rabiei* on *Cicer arietinum*, 2009; *Botrytis cinerea* on grapevine, 3971, 2791, 3173; on persimmon, 2786; on strawberry, 2532; on tomato, 318; *Bremia lactucae* on lettuce, 1375s; cucumber root rot, 2581; *Elsinoe veneta* on raspberry, 1377n; *Fusarium* on grapevine, 3173; *F. oxysporum* f.sp. *aechmea* on *Aechmea fasciata*, 1374g; *F. solani* on oil palm, 3532; *Fusicoccum amygdali* on almond, 854; *Gibberella fujikuroi* on *Freesia*, 390g; *Mycosphaerella fragariae*, 2781; oil palm leaf diseases, 3181; *Peronospora parasitica* on cabbage, 1375s; *P. tabacina*, 1281; *Phomopsis diospyri* on persimmon, 2786; *Puccinia pringsheimiana* on gooseberry, 1927; *Rhizoctonia* on grapevine, 3173; *Sclerotinia fructigena* and *S. laxa* on plum, 1615; *Streptomyces scabies*, 2552; *Xanthomonas phaseoli* on bean, 1377h; as seed treatment, 1375w; for carrot, 2936; for cereals, 3406; for *Hibiscus cannabinus*, 2730; for maize, 1113e, 3096, 3436; for oats, 1858; for soybean, 2920; for spruce, 3219a; for sunflower, 2231; as soil disinfectant, 2356g, 2730; as treatment for onion bulbs, 2339.
—, effect of, on *Alternaria tenuis*, 741; *Aspergillus flavus* and *A. niger* from groundnut, 2016; *Botrytis cinerea* from strawberry and strawberry pollen, 3301a; on sugarcane, 3198e; of residues of, in soil on *Pythium ultimum* on pea, 41.
—, fungitoxicity of, in soil, 2985.
—, methods for determining residues of, 390r; moisture content of, 3334.
—, tolerance of *Sclerotinia homoeocarpa* on *Agrostis* to, 2745.
—, toxicity of, to oats, 1858.
— in combination against cotton root rots, 2492; *Fusarium roseum* on turf, 551; *Peronospora tabacina*, 627; *Urocystis cepulae* on onion, 3649.
— — — on apple, cucumber, and rose, 19.
— 85 against *Claviceps purpurea* on *Poa pratensis*, 1170.

[Thiram] SF-75 against damping-off of pine and spruce, 341.
Thiuron against *Botrytis cinerea* on grapevine, 3522.
Thuja occidentalis, *Phacidium abietis* on, 338.
*— *plicata*, *Coryneum thujinum* on, in Canada, 2562f.
— —, *Didymascella thujina* on, in U.K., trapping ascospores of, 3219.
Thysanolaena maxima, *Xanthomonas vasculorum* on, in Mauritius, distinction between isolates from sugarcane and, 3198b.
Tiezene against *Peronospora tabacina*, 1281; *Phragmidium tuberculatum* on rose, 1164; *Plasmopara viticola*, 2791.
Tilia, *Coniophora puteana* and *Fomes fomentarius* on, biology of, 1702.
— *europaea*, *Aureobasidium pullulans* on, localization of, in, 662.
Tilletia barclayana on rice, 1539.
— —, teliospore morphology of, 3738.
— *caries*, effect of Rumanian fungicides on, 3333.
— —, electron microscopy of, 3739.
— — on cereals, 1404, 3013.
— — on wheat, see Wheat.
— —, review of methods for testing fungicides against, in U.S.S.R., 1841.
— *contraversa* on cereals, 3013.
— — on rye, 1809.
— — on wheat, see Wheat.
— *foetida* on wheat, see Wheat.
— —, review of methods for testing fungicides against, in U.S.S.R., 1841.
— *pancicii* on barley, 1842.
Tillex as seed treatment for rye, 146.
—, toxicity of, to cacao, 2438b.
Timber, ascomycetes on, 3247.
—, *Aureobasidium pullulans* on, in Australia, 2285; growth of, 3610; white mutant of, 1700.
—, bacteria on, resistance of, to pentachlorophenol, 930; review of, 931.
—, basidiomycetes on, in New Zealand, 3249.
— blue stain in U.K., bark beetles associated with, 3219; damage caused by and factors affecting, 3609.
—, *Cephaloascus fragrans* on, adaptation of, to pentachlorophenol, 360.
—, *Ceratocystis araucariae* on, in Chile, causing blue stain, 1990.
—, *Clitocybe tabescens* on, in Réunion, 979.
—, *Collybia velutipes* on, characteristics of, 679.
—, *Coniophora puteana* on, in Thailand, resistance to, 929; control, 3251; effect of radiation on, 2303; utilization of N by, 1332.
—, *Daedalea quercina* on, in Thailand, resistance to, 929.
—, deuteromycetes on, 3247.
—, *Diplodia natalensis* on, in Trinidad, bark beetles not associated with, 3608.
—, — *pinea* on, in New Zealand, 3249; control, 1333.
—, *Fomes* on, effect of temp. on, 3605.
—, — *fomentarius* on, characteristics of, 679; wood-destroying ability of, 680.
—, — *igniarius* on, destructive capacity of, 1328.
—, — *roseus* on, control, 681.
—, fungi on, in Thailand, 929; biochemistry of, 903; chemical decomposition of, by, 2886; control, 903; German book on, 1699; monograph on, 1697; morphology of, 903; N nutrition of, 2888; resistance to, 929; symptoms of, 903; technique for examining, 2633; for identifying, 2887.
[Timber], *Ganoderma applanatum* on, characteristics of, 679.
—, *Hyphoderma tenue* and *Hyphodontia alutaria* on, 932.
—, *Lentinus lepideus* on, control, 3251; effect of light on decay by, 682; utilization of N by, 1332.
—, *Lenzites saepiaria* and *L. subferruginea* on, control, 681.
—, — *trabea* on, control, 3251; effect of light on decay by, 682; of N content on, 1992.
—, *Leptographium* on, in Australia, 2285.
—, *Macrophoma sabinea* on, in Australia, 2285.
—, 'Mastpilz A' on, 932.
—, *Odontia bicolor* on, 932.
—, *Penicillium* on, in Australia, 2285.
—, *Peniophora* near *P. pini* and *P. filamentosa* on, in Australia, 2285.
—, — *gigantea* on, in Australia, 2285; New Zealand 3249; control, 1333.
—, — *mollis* on, 932.
— pink stain, *Corticium ?psorosum* and *Fusarium* associated with, 1333.
—, *Pleurotus ostreatus* on, factors affecting, 1991.
—, *Polyporus* on, effect of temp. on, 3605.
—, — *adustus* on, in Canada, inhibition of, by *Trichoderma viride*, 2891.
—, — *anceps* on, 2271b.
—, — *megaloporus* on, in England and France, taxonomy of, 1331.
—, — *sulphureus* on, effect of CO_2 and O on growth of, 1993.
—, *Polystictus sanguineus* on, in Australia, 2285.
—, — *versicolor* on, in Thailand, 929; characteristics of, 679; control, 3251; effect of CO_2 and O on, 1993; of N content on, 1992; of, on, 3606; factors affecting, 1991; N nutrition of, 2888; penetration by, 3606; resistance to, 929; serology of, 1701.
—, *Poria carbonica* on, detection and identification of, 1334.
—, — *monticola* on, control, 681; effect of light on decay by, 682; penetration by, 3606.
—, — *vaporaria* on, utilization of N by, 1332.
— preservation by sap-displacement method, 678.
— — with ammonia, 1334; ascu, 678; celcure, 678; coal tar oil, 1989; copper sulphate, 678; creosote, 3251; fuel oil in combination, 681; methyl bromide, 1334; pentachlorophenol in combination, 681, 3609.
— preservatives, leaflet on, 2885.
— —, technique for evaluating, 3250.
—, *Schizophyllum commune* on, 1335; in Australia, 2285; submerged culture of, 3607.
—, *Serpula lacrimans* on, effect of radiation on, 2303; utilization of N by, 1332.
—, soft rot fungi on, control, 1989; effect of pairs or single sp. on, 933; review of, 931; technique for testing, 934.
—, *Stereum frustulosum* and *S. gausapatum* on, effect of CO_2 and O on, 1993.
—, — *sanguinolentum* on, in Australia, 2285.
— storage decay in Canada, 2305, 2891; Sweden, 2892; review of, 677, 681.
—, *Trametes* on, effect of temp. on, 3605.
—, — *gibbosa* on, characteristics of, 679.
—, — *sanguinea* on, antagonism of other fungi to, 2304.

[Timber, *Trametes*] *serialis* on, control, 681.
—, *Trichoderma viride* on, in Australia, 2285.
— chips, fungi on, 2305; in Sweden, 2892.
Tin compounds, organic, in agriculture, 393e.
— —, —, inhibition of *Gloeosporium alborubrum* on *Hevea* rubber by, 880d.
TMTD, see Thiram.
Tobacco (*Nicotiana tabacum*), *Agrobacterium tumefaciens* on, interaction between plant viruses and, 1672.
—, *Alternaria longipes* on, in Malawi, 399b; Malaya, 2034b; Zambia, 885.
—, — *tenuis* on, 3565.
— as indicator for potato virus Y, 1744d.
—, *Aspergillus* on, 3565.
—, bacteria on, hypersensitivity to, 3316.
— Barakovo-black spot in Bulgaria, 1673.
— bushy top virus on tobacco in Rhodesia, 885.
—, *Cercospora nicotianae* on, in Rhodesia and Zambia, 885; control, 2831.
—, cherry chlorotic-necrotic ring spot virus on, var. react. to, 255.
—, — Pfeffinger virus on, serum production, 1193.
—, citrus infectious variegation virus on, transmission of, mechanically, 2715.
—, *Cladosporium herbarum* on, 3565.
—, *Colletotrichum* on, in Japan, taxonomy of, 887.
—, — *nicotianae* on, carbohydrase activity in, 2605.
—, — *tabacum* on, in Malawi, 399b; Rhodesia and Zambia, 885.
—, *Corticium solani* on, in Malawi, 399b.
—, cucumber mosaic virus on, in Japan, 77; chromatography of, 76f; ectodesmata and resistance to, 3206; factors affecting activity of, 76g; *in vitro* increase in infectivity of, 466; method for assaying strs. of, 77; purification of, 76e; results of international community trial on, 306.
—, — — — necrotic str. on, types of resistance to, 2252.
—, — — — str. on, chromatography of, 76f; factors affecting activity of, 76d; leaf veins as sources of, for vectors, 2639; relationship of, to N nutrition, 76c; symptoms of, 75a; var. react. to, 76b.
—, — — — strs. on, development of symptoms of, 76a; differential transmission of, by vectors, 3389.
— damping-off, 1381e, 3210.
— diseases in Italy, 1807; Rhodesia and Gambia, 885; pipecolic acid content in relation to, 2158.
—, *Erwinia amylovora* on, hypersensitivity to, 3316.
—, *Erysiphe cichoracearum* on, in Rhodesia, 885; breeding against, 3563; control, 629, 1284.
—, — f.sp. *nicotianae* on, in U.S.S.R., infected stems as source of, 315.
— etch virus, hosts of, 1455.
— — — in Venezuela, 1381m.
— — —, relationship of, to other viruses, 2647, 2951.
— — — on *Capsicum*, 2648.
— — — on *Zinnia*, 2423.
—, fungi on damaged flue-cured in U.S.A., 3211.
—, *Fusarium argillaceum* on, 3565.
—, groundnut stunt virus on, in U.S.A., identification and symptoms of, 3305e.
[Tobacco] leaf curl virus on tomato, 634, 3568.
— mosaic virus in Jordan, Lebanon and Syria, 1045.
— — —, differentiation of, from *Lychnis* mosaic virus, 3471; *Opuntia* virus, 1160.
— — —, *Dolichos* enation mosaic virus serotype of, 465.
— — —, effect of DMSO on, 1664; fat emulsions on mechanical transmission of, 395c; freezing on infectivity of, 2829.
— — —, electron microscopy of, 1271, 1963, 2109.
— — —, inhibition of, by extracts from animals, 1745n; from fungi, 3204; pentaene G8, 422; solar radiation, 3387; UV radiation, 262.
— — —, interaction between ribonuclease and, 463.
— — —, *in vitro* increase in infectivity of, 466.
— — —, resistance to *Pseudomonas tabaci* induced by, 3566.
— — —, serology of, 1048, 2557.
— — —, technique for labelling, 1453; purifying, 779.
— — — on bean, 1454, 1743z, 2112.
— — — on *Capsicum*, 1044, 1744e, 2648.
— — — on cherry, 572.
— — — on *Datura stramonium*, 2254.
— — — on grapevine, 583a, b, 2224, 3517.
— — — on *Lycopersicon peruvianum*, 3567.
— — — on *Nicotiana glutinosa*, see *N. glutinosa*.
— — — on *N. sylvestris*, 1272.
— — — on orchid, 2738.
— — — on pimento, 1745h.
— — — on potato, 3300d.
— — — on *Radicula sylvestris*, 2111.
*— — — on *Sambucus*, 1052.
— — — on tobacco, 1273a; cigarettes as source of, in Japan, 2263; control, 2253; detection of, 78; ectodesmata and resistance to, 3206; effect of chloramphenicol on susceptibility to, 1743z; of cytokinins on, 1274; of heat on, 1452; of, on P metabolism, 3205; fine structure of, 1270; hypersensitivity to, induced by potato virus Y, 2254, 3209; inhibition of *Alternaria solani* and *A. tenuis* by sap from, 3386; inhibition of, by gasteropod extracts, 1275; by yeast RNA, 2422; localization of protein in, 3560; metabolism of glucose in, 1273b; methods for measuring synthesis in, 1049; for preparing fluorescent antibodies of, 3561; peroxidase isozymes in, 2112; physiological modifications caused by, 2828; rate of growth of peptide chain in, 1661; resistance to, 1660; results of international community trial on, 306; study on metabolism of, 622; tissue culture of, 886; types of resistance to, 2252; var. react. to, 1660.
— — — on tomato, see Tomato.
*— — — on wisteria, 1052.
— — — aucuba str. on tobacco, fine structure of, 2830.
— — — leguminous str., nontransmission of, by *Tetranychus urticae*, 70.
— — — orchid str. on *Cattleya*, 3136.
— — — ribgrass str. on *Plantago media*, 1802.
— — — str. on *Chenopodium amaranticolor*, 2740.
— — — — on *Cymbidium*, 80.
— — — — on *Datura stramonium*, 2740.
— — — — on *Nicotiana glutinosa*, 80, 2740.
— — — — on *Petunia hybrida*, 2740.

[Tobacco mosaic virus str.] on tobacco, electron microscopy of, 3556.
— — — strs., temp. sensitivity of, 3557.
— — — — on tomato, 1288.
— — — tomato enation mosaic str. on tomato, 317.
— — — — str. on tobacco, symptoms of, 2263.
— — — — — on tomato, 632, 1287.
— — — U1 str., hosts of, 2547.
— — — U2 str. on *Nicotiana glauca*, 3385.
— — — U5 str. on tobacco, virus particles in chloroplasts of, 3558.
— — — Y-TAMV str. on asparagus, broad bean, and pumpkin, 3385.
— — — +potato virus X on tomato, 630, 1290, 2108.
—, *Mucor racemosus* on, 3565.
— necrosis virus, comparison of *in vitro* infectivity of, with cucumber mosaic virus, 466.
— — —, dark reactivation of UV-irradiated, 3050.
— — —, distinction of cucumber necrosis virus from, 2107.
— — —, electron microscopy of satellite virus of, 2425.
— — —, transmission of, by vectors, 9b, 2955, 3051.
— — — on bean, see Bean.
— — — on *Chenopodium amaranticolor*, 2584a.
— — — on cowpea, 1771.
— — — on tobacco, effect of UV light on, 2584a; not infecting uninjured leaves of, 1454.
— — — on tulip, 1374t, 3301j.
— — — strs., selective activation of satellite virus strs. by, 3207.
—, ozone injury to, 3702.
—, *Penicillium* on, 3565.
—, *Peronospora tabacina* on, 1279; in Germany, E., 2029; Iran, 1668; Italy, 888; Poland, 2956; Qd, 311, 1380a; Switzerland, 1964; Turkey, 2257; Vict., 1380a; abnormal proliferation of conidia of, 313; breeding against, 308; control, 311, 624, 625, 627, 888, 1280, 1281, 1964, 2256, 2257, 2379b, 2834; cryogenic storage of, 623; effect of cultures and spp. of *Nicotiana* on virulence of, 2260; of inoculation conditions on behaviour of resistant vars., 1669; of root infection on epidemiology of, 1670; of water on leaves on susceptibility to, 1380d; factors affecting control, 312; affecting infection by, 1283, 2833; affecting oospore formation in, 314; affecting sporulation of, 628; forecasting of, 1808; hosts of, 1668; infection sites of, 1277; investigations on resistance to, 1965; method for assessing fungicides against, 310; systemic fungicides against, 2379b; penetration by, 2586c; physiologic races of, 1380b; reaction to, testing for, 1276; stem form of, 1278; strs. of, 1276, 1380a; symptoms of, 626; techniques for inoculating, 1282; var. react. to, 1666, 1667, 1668; viability of conidia of, in storage, 309.
—, *Phytophthora nicotianae* on, in Japan, 890; Puerto Rico and U.S.A., breeding against, 889; effect of Ca nutrition on, 316; var. react. to, 890.
—, — — var. *parasitica* on, cultural and pathogenic variation in, 2657.
—, potato virus S on, methods for detection of, 2544.
[Tobacco, potato virus] X on, cages for, in serum production, 2113; detection of, 78; of free nucleic acid in, 2642; effect of blue light on, 2641.
—, — — Y on, in Japan, 2255; Rhodesia, 3b; breeding against, 308; cages for, in serum production, 2113; hypersensitivity to tobacco mosaic virus induced by, 2254, 3209; to tobacco necrosis virus induced by, 2254; methods for detection of, 2544; str. of, 2255; results of international community trial on, 306.
—, *Pseudomonas angulata* on, control, 2834.
—, — *fluorescens* on, respiration changes induced by, 1286, 1744c.
—, — *solanacearum* on, in Bulgaria, 2594; Colombia, 1671; effect of, on aromatic biosynthesis, 2558; inheritance of resistance to, 3563; penetration of, 2594; race of, 1671.
—, — *syringae* on, effect of, on respiration, 1286, 1744c; hypersensitivity to, 1744c, 3316.
—, — *tabaci* on, breeding against, 3563; control, 2834; effect of, on respiration, 1286, 1744c; peroxidase in, 1966; tobacco mosaic virus-induced resistance to, 3566.
—, *Puccinia substriata* on, in Rhodesia, 891.
—, *Pythium aphanidermatum* on, control, 3210.
— rattle virus, association of, with mitochondria, 3052.
— — —, in France, 1374u; Netherlands, 1059.
— — — in soil, 394e, 2586e.
— — —, multiplication of, 3301g.
— — — on aster, 2494.
*— — — on *Gerbera jamesonii*, 1157.
— — — on *Nicotiana clevelandii*, 3301b.
— — — on *N. glutinosa*, 2494.
— — — on oats, 2584g.
— — — on *Plantago*, 1374s, 1804.
— — — on potato, 394e, 2234a, b.
— — — on tobacco, 2494; in *Belgium, 1665; Japan, 307; effects of temp. on multiplication of, 461; transmission of, 1665.
— — —, particles of in relation to infection, 1456, 2644.
— — —, serological identification of, 1374u, 1457.
— — —, transmission of, by vectors, 1059, 1374u.
—, *Rhizopus stolonifer* on, 3565.
— ring spot virus on bean, 2112.
— — — on clover, 3484.
— — — on cowpea, 2112.
*— — — on *Crotalaria spectabilis*, 1803.
— — — on *Phaseolus*, 3562.
— — — on soybean, 2334.
— — — on tobacco, decline of specific infectivity of, 3562; transmission of, by vectors, 3208.
— — — on *Vernonia anthelmintica*, 3054.
— rosette virus on tobacco in Rhodesia, 885.
—, *Sclerotium rolfsii* on, susceptibility to, 1810.
—, *Scopulariopsis* on, 3565.
— streak virus in Venezuela, 1381m.
— stunt virus, transmission of, 9b; by *Olpidium brassicae*, 1061.
—, *Thielaviopsis basicola* on, in New Zealand, 892; breeding against, 308; effect of fungicides on, 1285; factors affecting, 978n; genetics of, 3563; var. react. to, 892, 978n.
—, tomato black ring virus on, purification and serum production, 1193.

[Tobacco], turnip mosaic virus Japanese str. on, inhibition of, by *Chenopodium* sap, 468.
— veinal necrosis virus, non-transmission of, by *Tetranychus urticae*, 70.
*— — — — on potato, 2359b.
—, *Verticillium alboatrum* on, resistance to, 3402.
—, — *dahliae* on, effect of phenolic compounds on, 2606; genetics of, 3564; resistance to, 3402; var. react. to, 3564.
*—, — *tricorpus* on, 2658.
— virus diseases, 1381m; in Bulgaria, 2100; Venezuela, 3306; antiviral factor induced in, by phytic acid, 1051; identification of, 2586e; mechanism of resistance to, 3559; results of international community trial on, 306.
Tolyposporium christensii on *Cymbopogon flexuosus*, differences between *T. cymbopogonis* and, 2513.
*— *ehrenbergii* on sorghum, 3097.
— —, physiology of, 2996.
— *penicillariae* on *Panicum miliaceum*, 1462.
Tomatine, sensitivity of fungi to, 2559.
Tomato (*Lycopersicon esculentum*), *Agrobacterium tumefaciens* on, development of, 1304.
—, *Alternaria* on, control, 2344.
—, — *porri* on, factors affecting, 3069.
—, — *solani* on, in Bulgaria, 2836; control, 1401, 2379b, 2836, 3697; resistance to, 3669e; study on, 1293; systemic fungicides against, 2379b; var. react. to, 638, 3669e.
—, — *tenuis* on, in India, 3218; control, 1294, 3218, 3342; factors affecting, 1294; transmission of, by seed, 1294.
— as indicator for mild strs. of potato spindle tuber virus, 1232.
—, *Ascochyta hortorum* on, in Netherlands, 1374d.
—, *Aspergillus fumigatus* on, 1302.
— aspermy virus on *Chrysanthemum*, see *Chrysanthemum*.
— — — on *C. cinerariifolium*, 390k.
— — — on *C. indicum*, 224.
— — — on *Tephrosia vogelii*, 3054.
— — — on tomato, effect of gibberellic acid on, and symptoms of, 3212.
— — — on *Vernonia anthelmintica*, 3054.
—, beet curly top virus on, in U.S.A., 3214; auxin content and, 2650; epidemiology of, 3214; recovery from, 893; spread of, 1674; transmission of, by vectors, 893, 3214; var. react. to, 893.
— black ring virus in Netherlands, transmission of, by nematodes, 1059.
— — — — — on grapevine, 583b.
— — — — — on tobacco, 1193.
— — — — — on tomato in India, 633.
— — — — — beet ring-spot str., antiserum to, 2586e.
— blossom-end rot, factors affecting, 391a.
— blotchy ripening, tobacco mosaic virus associated with, 391a.
—, *Botrytis cinerea* on, control, 318.
—, Brazilian tomato yellow band virus on, in Brazil, electron microscopy of, 1291.
— brown root rot, control, 390t; effect of soil disinfection on, 897; effect of, on yield, 3571; factors affecting incidence of, 390d; genetics of, 3570; *Pyrenochaeta lycopersici* associated with, 3571.
— bushy stunt virus on cherry, *1620, 2426.
— — — — — on *Datura*, 1620.
[Tomato bushy stunt virus] on *D. stramonium*, 2646.
— — — — — on tomato, effect of heat on, 2584b; non-transmission of, by *Olpidium brassicae*, 2646; serology of, 1620.
—, carnation mottle virus str. on, differentiation of str. on carnation from, 3463.
—, *Cercospora fuligena* on, in Ivory Coast, morphology and symptoms of, 85.
—, *Chaetomium* on, effect of, on growth in, 898.
—, — *globosum* on, 1302.
—, *Cladosporium fulvum* on, in India, 3218; U.S.S.R., 2838; breeding against, 391g, 2264; control, 2379b, 2835, 3218; effect of leaf exudates on, 637; genetics of, 3570; parasitism of, 636, 1298; physiologic races of, 2838; systemic fungicides against, 2379b; var. react. to, 636, 637, 2835.
—, *Colletotrichum coccodes* on, 3571; inoculation of, 3669f; interaction between host and, 93; light induced sporulation of, 894; mechanisms of var. resistance to, 1299.
—, *Corticium solani* on, in Ivory Coast, 2840; Netherlands, 1374d; Venezuela, 1381f; control, 318, 1374d; effect of staking on, 1381f; of, on, 1971; *Fusarium solani* associated with, 2840; var. react. to, 2560; virulence of, 2840.
—, *Corynebacterium michiganense* on, in *Argentina, 3576; U.S.A., 640; analysis of factors affecting response to, 3575a; control, 321, 640, 2843; evaluation of resistance to, 2267; factors affecting, 3305f; foliage blight phase of, 3305f; hypothesis of independent action of different strs., 3575b; leaf hairs as infection sites for, 321; local lesion bioassay for, 2561; seed transmission of, 2843; survival of, 640; symptoms of, 3305f.
—, cucumber mosaic virus on, 1745i; in Bulgaria, 2836; breeding against, 2264; control, 2836; effect of, on yield, 1290.
—, — — — strs. on, effect of, on seed production and non-transmission of, by seed, 72.
— damping-off, effect of maxicrop on, 1783.
—, *Deuterophoma tracheiphila* on, effect of, 1883a.
—, *Didymella lycopersici* on, in Scotland, 1746b; control, 318, 3572; leaflet on, 3572.
—, *Diplodina lycopersici* on, syn. of *Ascochyta lycopersici*, 1303.
— diseases in Bulgaria, 2836; Italy, 1807; breeding against, 986o; control, 1807, 2836.
—, dyrene residues in, 394a.
—, effect of inhibitor from seed-coat on germination of *Cochliobolus miyabeanus*, 1406; of soil micro-organisms on, 1424.
— enation leaf curl in India, caused by tobacco leaf curl virus str., 3568.
—, *Erwinia ?ananas* on, in U.S.A., production of grey wall symptoms by, 899, 1678.
—, fungi on, effect on respiration, 751; sensitivity of, to tomatine, 2559.
—, *Fusarium* on, in Brazil, 895; control, 1399.
—, — *oxysporum* on, 1302; resistance mechanism in, 2435.
—, — — f.sp. *batatas* on, effect of, on subsequent infection with f.sp. *lycopersici*, 1295.
—, — — f.sp. *lycopersici* on, 3697; in Brazil, 895; India, 3061; U.S.A., 319, 1676, 3215; breeding against, 2264; control, 2356i, 2835; effect of methyl bromide on, 1970; of previous inoculation with other ff.sp. on, 1295; of repression of polygalacturonase synthesis in, 2839; of rufianic acid on, in relation to Ca

supply, 3666m; of trace elements on, 2265; of, on, 3216; factors affecting, 319; genetics of, 3570; *Meloidogyne incognita* associated with, 3216; physiologic races of, 1676, 3215; polyphenoloxidase activity and production of IAA by, 3666f; symptoms of, 3061; tryptophane content of, 3573; variability of, 895; var. react. to, 638, 2835, 3216.
[Tomato, *Fusarium oxysporum*] ff.sp. *tracheiphilum* and *vasinfectum* on, effect of, on subsequent infection by f.sp. *lycopersici*, 1295.
—, — *roseum* on, in India, 3218; effect of, on growth, 898.
—, — *solani* on, in Ivory Coast, *Corticium solani* associated with, 2840.
— green back control, 391b.
—, grey sterile fungus on, effect of soil disinfection on, 897; interrelationship of, with *Heterodera rostochiensis*, 2842.
— — wall, bacteria producing symptoms of, 899, 1678.
—, growth of, under gnotobiotic conditions, 88.
— malformation, 2,4-D preparations causing, 2269b; hereditary, 2269a.
—, *Oidium* on, in Bulgaria, 2836.
—, *Penicillium notatum* on, 1302.
—, *Phoma alternariacea* and *P. destructiva* on, syn. of *Ascochyta lycopersici*, 1303.
—, *Phomopsis* on, cultural characters and symptoms of, 1301.
—, *Phytophthora* on, in Iran, 3063b; Netherlands, 1374d; determining pathogenicity of, 1292.
—, — *erythroseptica* on, var. react. to, 2560.
—, — *infestans* on, in Bulgaria, 2836; Malawi, 399a; U.S.S.R., 635; biotypes of, 1647; control, 399a, 635, 1398, 1677, 2379b, 2836, 3542; evaluation of fungicides against, 18, 2379b; factors affecting, 635; forecasting duration of incubation period, 3574; fungicide residues on, 2837; sources of infection for, 635.
—, potato spindle tuber virus on, 1232; symptoms and transmission of, 3395.
—, — virus M on, concentration of, 395e.
—, — — X on, effect of antiviral chemicals on, 2108.
—, — — — +tobacco mosaic virus on, effect of antiviral chemicals on, 2108; of, on yield, 630, 1290.
—, *Pseudomonas ?marginalis* on, in Scotland, 1746b.
—, — *solanacearum* on, 280, 2358b; in Bulgaria, 2594; *Canada, 2268; breeding against, 2264; control, 2268; nematodes in relation to, 3577; penetration of, 2594; severity of, 2844; transmission of, during clipping, 2845; var. react. to, 2844.
—, *Pyrenochaeta* on, causing corky root, 2947.
—, — *terrestris* on, control, 391e, 394j.
—, *Pythium aphanidermatum* on, in Ivory Coast, morphology and symptoms of, 85.
—, — *myriotylum* on, susceptibility to, 2434.
—, *Rhizopus stolonifer* on, effect of, on growth, 898.
— ring spot virus, composition and properties of, 3569.
— — — —, infectivity of, *in vitro* increase in, 466.
— — — —, inoculation, effect of supplements on, 2102.
— — — — not serologically related to rose mosaic virus, 843.
Tomato ring spot virus] on cowpea, 1771.
— — — — on raspberry, 1622, 2775.
*—, *Sclerotinia sclerotiorum* on, in India, 3218.
—, *Sclerotium rolfsii* on, physiologic races of, 1381i; susceptibility to, 1810; var. react. to, 896.
—, *Septoria lycopersici* on, in Argentina, 1968; Bulgaria, 2836; Rumania, 1969; control, 1377i, 1968, 1969, 2836; hydrolysis of tomatine by, 1300; overwintering of, 1969; severity of, 1969; var. react. to, 638.
— spotted wilt virus, infectivity of, *in vitro* increase in, 466.
— — — —, inoculation, effect of supplements on, 2102.
— — — — not causing *Hippeastrum* streak in Papua and New Guinea, 400.
— — — —, similarity of symptoms of *Amaryllis vittata* virus to, 2495.
— — — — vira-cabeça str. on tomato, 3213.
—, *Stemphylium botryosum* f.sp. *lycopersici* on, in Ivory Coast, 85; *U.S.S.R., 3066; control, 85, 3217; factors affecting, 85.
—, stolbur virus on, antiserum against, 2427; study on, 1745f; symptoms of, and transmission of, by vectors, 1451.
— storage disorders, factors affecting, 900, 1005.
— streak in U.S.S.R., viruses causing, 631.
—, tobacco leaf curl virus on, effect of gibberellic acid and 2-thiouracil on, 634.
—, — — — — str. on, causing enation leaf curl, 3568.
—, — mosaic virus on, 3306; in Bulgaria, 1044; Lithuania, 2261; U.S.S.R., 631; aggressiveness of isolates of, 1289; association of fruit abnormalities with, 1967; causing internal browning, 391a; control, 391f, 631, 1044, 2835; effect of antiviral chemicals on, 2108; of antiviral principle from, 978e; of soil disinfection on, 1675; of, on mineral concentration of leaves, 391a; on proplastids, 2110; on yield, 1290; factors affecting, 391a, 631; genetics of, 3570; var. react. to, 1745g, 2835, 3567.
—, — — — strs. on, effect of, on yield, 1288.
—, ?— — —, tomato enation mosaic str. on, 317.
—, — — — tomato str. on, adaptation of virus to resistant plants, 632; control, 1287.
—, — — — +potato virus X on, in U.S.S.R., 631; effect of antiviral chemicals on, 2108; of, on yield, 630, 1290; var. react. to, 630.
—, *Trichoderma viride* on, 1302; effect of, on growth, 898.
—, *Verticillium* on, control, 2356f, 2835; effect of soil disinfection by carbathion on, 639; leaflet on, 1297; susceptibility to, 478; var. react. to, 2835.
—, — *alboatrum* on, 3611; in Switzerland, 2266; effect of auxins on symptoms of, 2841; of methyl bromide on, 1970; of soil temp. on, 978h; factors affecting damage to, 390c; genetics of, 3570; resistance to, 3666r.
—, — *dahliae* on, breeding against, 320; effect of phenolic compounds on, 2606; genetics of, 3570; penetration and distribution of, 401h.
—, — *nigrescens* on, effect of soil temp. on, 978h.
— virus diseases in Bulgaria, 2100; Lithuania, 2261, 2262; Venezuela, 3306; control, 64; technique for detecting, 2262.

[Tomato], *Xanthomonas vesicatoria* on, in *Jamaica, 2958a; control, 2843; differences in virulence of, 642; infection of, 641; seed transmission of, 2843.
Torula herbarum on poplar, 333.
Toxoptera aurantii transmitting citrus tristeza virus, 1551, 3113.
— *citricidus* transmitting citrus tristeza virus, 1551, 1878.
Trametella extenuata and *T. trogii* on forest trees, 2563.
Trametes dickinsii on beech, 2889.
— *gibbosa* on timber, 679.
— *sanguinea* on beech, 2889.
— — on timber, 2304.
— *serialis* on timber, 681.
Transzchelia discolor on almond, 2759.
— *pruni-spinosae*, distinction of, from *T. pruni-spinosae* var. *discolor*, 1743h.
*— — var. *discolor* on stone fruit, 1743h.
— *punctata* in Chile, 82.
Trapex as soil disinfectant, 17.
Trees, *Armillaria mellea* on, in Britain, biological control of, 2564.
—, *Deuterophoma tracheiphila* on, 1883a.
—, diseases of, in British Commonwealth, reference book on, 2270; Taiwan, 2846; conference on, 921; monograph on, 1697.
—, *Fomes pinicola* on, biology of, 1702.
—, fungi on, in Iran, 2114; Turkey, 1994; succession of, 676.
—, *Gloeoporus* on, in Hungary, 904.
—, mycorrhiza of, in U.S.A., effect of nematodes on, 2271c; U.S.S.R., 1001.
—, *Nectria radicicola* on, in Germany, 2272.
—, *Phyllactinia guttata* on, C.M.I. description of, 1035b.
—, *Polystictus* on, in Hungary, 904.
—, *Pythium debaryanum*, *P. irregulare*, *P. paroecandrum*, and *P. ultimum* on, in Germany, 2272.
—, virus diseases of, in Europe, 1043; Germany, review of, 2637.
—, *Xanthochrous* on, in Hungary, 904.
Tremella albida on wood pulp, 936.
Tremellales in U.S.S.R., key to, 454.
Tribromophenol and in combination against timber blue stain, 3219.
3-trichloromethylmercapto-6-azauracil, fungistatic activity of, 3690.
Trichoconis padwickii in air over rice fields, 1865a.
Trichoderma hamatum in soil, 348a.
— *koningii*, antibiotic from, 1405.
— —, inhibition of, by soil fungistasis, 1432.
— *piluliferum* and *T. polysporum* in soil, 348a.
— *virgatum*, effect of 1-hydroxy-3-methylanthraquinone on conidial formation by, 3592.
— *viride*, antagonism of, to *Armillaria mellea*, 90; *Corticium solani* on rice, 3108; *Polyporus adustus* on timber, 2891; *Poria hypolateritia* on tea, 1962; *Sclerotium rolfsii*, 429; *Trametes sanguinea*, 2304.
— —, antibiotic from, 1405.
— —, autotropism in spores of, 2051.
— —, conidial state of *Hypocrea rufa*, 1603.
— —, effect of atrazine on growth of, 430; of O deficiency on sporulation of, 1173c.
— —, electron micrographs of, 447.
— —, factors affecting growth of, 1173c.
— — in rhizosphere of cotton, 3447.
— — in soil, see Soil.
[*Trichoderma viride*], inhibition of book-damaging fungi by, 3703; of *Coniophora puteana* by, 648; of *Macrophomina phaseoli* by, 2613.
— — on citrus, 2717.
— — on fungi, 3675.
— — on *Lentinus edodes*, 729.
— — on *Liriodendron tulipifera*, associated with butt rot, 1976.
— — on pine, 3230.
— — on timber, 2285.
— — on tomato, 898, 1302.
Trichodermin against *Fusarium* on cucumber, 973.
Trichodorus, incidence of, in relation to virus transmission, 395i.
— transmitting pea early browning virus, 1059; tobacco rattle virus, 1059, 1374u, 2234a, b, 2586e.
— *christiei*, effect of, on *Pseudomonas solanacearum* on tomato, 3577.
— *primitivus* ? transmitting tobacco rattle virus, 1665.
Tricholoma pessundatum, effect of simazine on, 749.
— *saponaceum*, antibiotic from, 1764.
Trichometasphaeria turcica in soil, 3022.
— —, inhibition of, by aureofungin, 3341.
— — on maize, see Maize.
— — on rice, 1113t.
— — on sorghum, 1113l.
Trichosanthes dioica, *Fusarium oxysporum* and *Rhizopus stolonifer* on, in India, symptoms of, 3061.
Trichoscyphella willkommii on larch, 2301.
Trichoseptoria fructigena on apple, 2205.
Trichothecin against *Erysiphe cichoracearum* f.sp. *cucurbitacearum* on cucumber, 387; plant diseases in Hungary, 1404; *Sclerotinia laxa* on sour cherry, 1404; *Sphaerotheca fuliginea* f.sp. *cucurbitacearum* on cucumber, 387; as seed treatment for maize, 3096.
— in combination against *Uncinula necator*, 584.
Trichothecium roseum, effect of, on germ tube growth of *Nectria purtonii*, 49.
— —, factors affecting growth of, 1173c.
— — in soil, 3447.
— —, inhibition of *Gnomonia erythrostoma* on apricot by, 1619; potato virus X ring spot str. by, 470a; radish mosaic virus by, 471.
— — on fruit, 1598.
Trifolium, see Clover.
Trifungol, see Ferbam.
Trigonella, potato virus Y can infect, 1455.
—, tobacco etch virus can infect, 1455.
— *foenum-graecum*, *Erysiphe polygoni* on, 2003.
— —, potato virus A can infect, 1455.
Trimangol against *Phragmidium tuberculatum* on rose, 1164.
Trioxymethylene against *Corticium solani* on potato, 1376b.
Triphenyltin acetate and triphenyltin chloride, toxicology of, on beet, celery and potato, 2042.
Triphenyl-tin hydroxide against *Cercospora beticola*, 3259; *C. gigantea* on citrus, 2960c; endoxerosis and stylar-end rot of lime, 1131.
Tripsacum laxum, *Puccinia polysora* on, biological control of, 152b.
Triscabol, see Ziram.
Trisodium phosphate against sugarcane chlorotic streak virus, 882b.
Triticum, see Wheat.

Triton B–1956, use of, on coffee, 2960d.
1-tritylimidazole, fungicidal activity of, 3332.
Trizone against *Agrobacterium tumefaciens* on cherry, 3504; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 2356i; as soil disinfectant, 1319, 3504.
Trockenbeize as seed treatment for wheat, 1090.
Tropaeolum, *Acroconidiella tropaeoli* on, C.M.I. description of, 3030.
Tsitral, effect of, on *Fomes tremulae*, 2388.
Tsuga, *Echinodontium tinctorium* on, in Canada and U.S.A., review of, 3245.
— *canadensis*, *Phacidiopycnis pseudotsugae* on, control, 675.
— *heterophylla*, *Coccomyces heterophyllae* on, in U.S.A., 1696.
— —, *Diplodina* on, in Canada, 643e.
Tuber albidum on pine, forming mycorrhiza, 3709.
— *maculatum* on pine, forming mycorrhiza, 3708.
Tubercolariaceae, key to identification of, 3037.
Tuberculina maxima on *Cronartium ribicola*, 401i, 1690, 2289.
Tulasnellales in U.S.S.R., key to, 454.
Tulip (*Tulipa*), *Botrytis tulipae* on, in U.S.S.R., 3473; effect of chlorpropham on, 1590; review of, 550.
— breaking virus, antiserum against, 2508.
— — — on *Iris*, 2366.
— — — on tulip, symptoms of, 3137.
—, *Fusarium oxysporum* f.sp. *tulipae* on, effect of Hg fungicides on, 844; inhibition of, by α-methylene-butyrolactone, 231; transmission of, by soil, 1165.
—, NEPO viruses on, in Scotland, 3301j.
—, *Penicillium corymbiferum* on, in Germany, 833.
—, production of fungitoxic substance by, 3666s.
*—, *Sclerotinia bulborum* and *Sclerotium tuliparum* on, in U.S.S.R., 3473.
—, tobacco necrosis virus on, in Scotland, 3301j; causing 'Augusta disease' and transmission of, by *Olpidium brassicae*, 1374t.
—, *Typhula idahoensis* on, in U.S.S.R., 3473.
— virus diseases, 390m, 3301j.
Tulipa, see Tulip.
Tunica illyrica, *Uromyces caryophyllinus* on, in Rumania, 1377k.
Tunstallia aculeata on tea, 2655, 3203.
Turf, *Calonectria nivalis* on, in N.S.W., 2032a; ? U.K., factors affecting, 1592.
—, *Corticium fuciforme* on, in U.K., control, 1592.
— damping-off in U.K., factors affecting, 1592.
—, *Fusarium roseum* on, control, 551.
—, *Ophiobolus graminis* on, in U.K., factors affecting, 1592.
— snow mould in Canada, 1593.
Turmeric (*Curcuma longa*), *Taphrina maculans* on, development of, 2801; isolation of, 2232; var. react. to, 870.
Turnip (*Brassica rapa*), *Erysiphe polygoni* on, effect of maxicrop on, 1783.
—, *Gloeosporium concentricum* on, study on, 939.
— mosaic virus, study on, 2574.
— — —, transmission of, by vectors, 983.
— — — on Chinese cabbage, 467.
— — — on horseradish, 941.
— — — on rhubarb, 3294.
— — — Japanese str. on tobacco, 468.
[Turnip], radish enation mosaic virus on, symptoms of, 2309.
— yellow mosaic virus, action of urate on, 685.
— — — —, inactivation of, by pancreatic ribonuclease, 3615.
— — — —, technique for detecting, 1457; for releasing 28s RNA from, 3049.
— — — — on Chinese cabbage, 1057, 1703.
— — — — necrotic str. on Chinese cabbage, 3614.
— yellows virus, spread of, 2584e.
— — — on ornamentals, 395g.
Tuzet against *Glomerella cingulata* on coffee, 1379f.
— in combination against *Nectria radicicola* and *Thielaviopsis basicola* on cyclamen, 3459c.
Tween 80, effect of, on *Hemileia vastatrix* on coffee, 1559.
Tylosine, resistance of *Xanthomonas campestris* to, 743.
Tympanis conspersa on fruit, 1598.
Typhula idahoensis in soil, 3409.
— — on tulip, 3473.
— — on wheat, 497a, b, 2680.
— *incarnata* on barley, 2691.
— — on rye, 2661.
— — on wheat, 497a, 2661, 2680.
— *ishikariensis* on rye and wheat, 2661.
Typhulochaeta japonica var. *couchii* on oak, 3583.

UC 21149, effect of, on *Verticillium alboatrum* on cotton, 2485.
UC 23271, properties and use of, against plant diseases, 1401.
Ulmus, see Elm.
UV light causing mutation in *Corticium solani*, 1444.
— —, effect of, on actinomycete str. 1952 on cotton, 211; *Ascochyta chrysanthemi* on *Chrysanthemum* and *A. pisi* on pea, 24; clover phyllody virus, 3665a; *Erysiphe graminis* on wheat, 3419; *Fusarium solani* ff.sp. *phaseoli* and *pisi*, 2908; *Mycosphaerella pinodes* on pea, 24; *Phoma herbarum* var. *medicaginis* on lucerne, 24; resistance of barley to *Cochliobolus sativus* and *Pyrenophora teres*, 2466; sporulation of *Alternaria solani*, 57; tobacco necrosis virus, 2584a.
— —, use of, in detecting *Pseudomonas phaseolicola* on bean seed, 3269.
Umbelliferae, *Erysiphe heraclei* on, C.M.I. description of, 1035b.
Uncinula bicornis on *Acer*, 3731b.
— *salicis* on poplar, 2562d, *e.
— — on *Salix*, 2562d.
Unifume as soil disinfectant, 3595a.
Urea, effect of, on fungi on wood pulp, 936.
—, inhibition of *Venturia inaequalis* by, 2195.
Uredinales, culture of, 773.
— in Hungary, 2619; the world, study on, 46.
— on *Centaurea*, 46b.
—, terminology of, 3031.
Uredo apacheca on *Juniperus deppeana*, 356.
Urocystis agropyri on **Deschampsia caespitosa* and *Phleum alpinum*, 2184.
— — on *Poa pratensis*, 2509, 3477.
— — on wheat, 2445.
— *cepulae* on onion, 980a, 2340, 3649.
— *occulta* on cereals, 3013.
Uromyces alopecuri, see *U. dactylidis*.

*[*Uromyces*] *anthyllidis* on Leguminosae, 237.
— *appendiculatus* in Chile, factors affecting development of, 82.
— — on bean, see Bean.
— — on *Phaseolus lunatus*, 702, 3272.
— —, polysomes in extracts of, 2053.
— —, self-inhibition of germination in, 31.
— *betae* on beet, 2585e.
— *caryophyllinus* in Rumania, hosts of, 1377k.
— *christensenii* on *Hordeum bulbosum* and *Muscari parviflorum*, 137.
*— *ciceris-arietini* on Leguminosae, 237.
— —, self-inhibition and self-stimulation of germination in, 1769e.
— *dactylidis*, nuclei of, 2630.
*— *delphinii* on *Delphinium*, 46e.
— *dianthi* on carnation, see Carnation.
— *durus*, nuclei of, 2630.
— *fabae*, see *U. viciae-fabae*.
— *flectens* on clover, 1174.
*— *fulgens* and **U. heimerlianus* on Leguminosae, 237.
— *hordeastri* on *Hordeum bulbosum* and *H. murinum*, 137.
*— *loti* on Leguminosae, 237.
— *lupinicola* on lupin, 2732.
— *mysticus* on *Hordeum bulbosum*, 137.
— *nerviphilus* on clover, 1174.
*— *punctatus* on Leguminosae, 237.
— *reichertii* on *Hordeum bulbosum* and *Scilla hyacinthoides*, 137.
— *striatus*, self-inhibition of germination in, 31.
— *trifolii* on clover, 240, 1174.
— *trifolii-purpurei* on clover, 1809.
— *trifolii-repentis* on clover, 1174.
*— *viciae-craccae* on Leguminosae, 237.
— *viciae-fabae*, effect of, on plant respiration, 751.
— — on broad bean, see Bean, broad.
— *viennot-bourginii* on barley, *Bellevalia eigii*, and *Hordeum spontaneum*, 137.
Urtica dioica, microfungi on, ecology of, 2970a, b.
Uspulun against *Tilletia* on wheat, 1840.
Ustilaginales in Baltic, 1036; Hungary, 1437.
—, teliospore germination in, 3036.
Ustilaginoidea virens in air over rice fields, 1865a.
— — on rice, 1381c, 1865b.
Ustilago, effect of radiation on teliospore germination, 97.
— *affinis* on *Stenotaphrum secundatum*, 1168a.
— *avenae*, electron microscopy of, 3739.
— —, genetics of, 2631a, b.
— —, lyophilization of, 3380.
— — on cereals, 3013.
— — on oats, see Oats.
— *esculenta* on *Zizania latifolia*, 7214.
— *hordei*, electron microscopy of, 3739.
— —, genetics of, 2631a.
— — on barley, see Barley.
— — on cereals, 3013.
— — on oats, see Oats.
— *maydis*, melanins of, 3351.
— — on cereals, 3013.
— — on maize, see Maize.
— *nuda*, biology of, 484.
— — on barley, see Barley.
— — on cereals, 3013.
— — on wheat, see Wheat.
— —, teliospore germination in, 131; self-inhibition of, 31.
— — f.sp. *durum* on wheat, 1493.
[*Ustilago*] *scitaminea* on sugarcane, see Sugarcane.
— *striiformis*, inhibition of germination of *Puccinia graminis* by extracts from, 31.
— — on *Agrostis palustris*, 2509.
— — on *Poa pratensis*, see *P. pratensis*.
*— *trebouxii* on *Panicum virgatum*, 87.
Ustilgan against *Ustilago nuda* on barley, 2139.
Ustulina deusta on oil palm, 872.
— *vulgaris*, see *U. deusta*.
**Utetheisa pulchella*, *Beauveria* on, in India, 1392.

Vaccinium, *Godronia cassandrae* on, in Canada, pathogenicity of, 2565.
— *angustifolium*, *Botrytis* and *Sclerotinia* on, effect of ferbam and ziram on pollen germination of, 858.
— *ashei* and *V. corymbosum*, *Phytophthora cinnamomi* on, var. react. to, 1207.
Valeriana and *Valerianella*, *Phoma* can infect, 2357d.
Valsa batangae on coconut, 283.
*— *ceratophora* on oak, 2414.
— *cincta*, culture medium for, 3715.
— — on cherry laurel, 2502.
— — on peach, 575.
— — on plum, see Plum.
— *leucostoma*, factors affecting pycnidiospore germination of, 3497.
— — on cherry, 856.
— — on peach, 2214.
— *sordida* on poplar, 332, 915.
Vancomycin, resistance of *Xanthomonas campestris* to, 743.
Vanilla, *Fusarium oxysporum* f.sp. *vanillae* on, mode of entry of, 2960f.
—, *Phytophthora* on, in Réunion, 979.
—, *Rhizoctonia* on, forming mycorrhiza, 2960f.
Vapam against damping-off of tobacco, 1381e; *Fusarium oxysporum* f.sp. *lycopersici* on tomato, 1970; nematodes associated with *Sclerotium rolfsii* on *Eleusine coracana*, 1113o; *Verticillium alboatrum* on tomato, 1970.
— as compost disinfectant, 714.
— as soil disinfectant, 694b, 1731b, 2491, 3126, 3127, 3594, 3620.
—, effect of, on *Thielaviopsis basicola* on tobacco, 1285.
— in combination as soil disinfectant, 694b, 2356e, f.
Vegetable marrow (*Cucurbita pepo*), *Alternaria cucumerina* on, 2350.
— —, cucumber mosaic virus on, 1745i; in Germany, 1362.
— —, — — — str. on, identification and physical properties of, 3654.
— —, *Prunus* necrotic ring spot virus can infect, 13771.
Vegetables, diseases of, in India, 2893; book on, 950, 3312; control, 986u, 1375b, 1995, 3303, 3697; problems in production and marketing of, 1375r; tolerance of pesticides by, 2116.
—, *Erwinia carotovora* on, in Iran, 3315.
— storage disorders in India, 1465.
—, virus diseases of, in Germany, 2637.
Veluticeps berkeleyi on pine, *V. fusca* syn. of, 2297.
Venturia cerasi on *Prunus cerasifera* var. *divaricata*, 577.

[*Venturia*] *chlorospora* on *Salix*, 1746d.
— *inaequalis* as test fungus, 3692.
— —, comparison of physiology of, with *Cladosporium*, 2999.
— —, effect of phosphoric acid derivatives on, 1763.
— — on apple, see Apple.
— *nobilis* on *Laurus nobilis*, 2501.
— *pirina* on pear, see Pear.
— *saliciperda* on *Salix*, 336.
— *tremulae* on aspen, 331.
— — on poplar, 1309.
Venturiaceae in N. America, 3033.
Verbascum virus diseases in Czechoslovakia, 1374s.
Vernonia anthelmintica, alfalfa mosaic, cucumber mosaic, tobacco ring spot, and tomato aspermy viruses on, transmission of, by vectors, 3054.
Veronica longifolia, *Puccinia veronicae-longifoliae* on, 2623.
Verticicladiella wageneri on pine, 353, 354.
— — on *Pseudotsuga menziesii*, 354, 2880.
Verticillium alboatrum, decomposition of cellulose by, 2407.
— —, effect of cytokinins and phenols on, 3357; of nutrient media on, 53, 1011; of tannins on, 1775.
— — in soil, 3023.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— —, nuclear division in, 3743.
— — on apple, 1184.
— — (microsclerotial) on *Chrysanthemum*, 2357k.
— — on cotton, see Cotton.
— — on eggplant, 722, 978h.
— — on elm, 907.
*— — on hop, see Hop.
— — on *Laurus nobilis*, 2501.
— — on lucerne, see Lucerne.
— — on plants, 3402.
— — on potato, see Potato.
— — on stone fruit, 3157.
— — on strawberry, 3511a, b.
— — on tobacco, 3402.
— — on tomato, see Tomato.
— —, oxidative respiratory enzymes from conidia of, 1008.
— —, protein patterns in, 3374.
— —, taxonomy of, 53, 2658.
— —, toxicity of D 735 to, 739.
— — +*Fusarium roseum* or +*Thielaviopsis basicola* on cotton, 528.
— *armoraciae* on horse radish, 941.
— *cinerescens* on carnation, see Carnation.
— *dahliae*, antagonism of soil actinomycetes to, 1140.
— —, decomposition of cellulose by, 2407.
— —, determination of number of nuclei in, 2490.
— —, effect of anabasin and benzthiazolylthioacetic acid on, 1012, 1013; of anabasin and sophocarpin on, 1014; of antibiotics from *Trichoderma* spp. on, 1405; of cellulose and pectins on, 1010; of nutrient media on development of, 53, 1011; of sources of carbohydrate and N on, 34.
— — in cotton debris, 3448.
— — in soil, 40, 1137, 2487.
— —, inhibition of, by *Streptomyces rimosus*, 978d.
— — on *Acer saccharum*, 2276.
[*Verticillium dahliae*] on artichoke, 3297.
— — on cacao, 3059c.
— — ?on *Chrysanthemum*, 2357k.
— — on cotton, see Cotton.
— — on elm, 2276.
— — on groundnut, 3286.
— — on *Hedysarum coronarium*, 1009.
— — on plants, 3402.
— — on potato, 2245, 2246.
— — on stone fruit, 1198.
— — on sunflower, 1222.
— — on tobacco, 2606, 3402, 3564.
— — on tomato, see Tomato.
— —, protein patterns in, 3374.
— —, taxonomy of, 53, 2658.
— — var. *longisporum*, stable diploid, 3041.
*— *foexii* on soybean, 3066.
— *fumosum* on cotton, 3450.
— *malthousei* on mushroom, 1374m.
— *nigrescens*, decomposition of cellulose by, 2407.
*— — on cotton, 214.
— — on eggplant, 978h.
— — on potato, 978h, 2246.
— — on tomato, 978h.
— *nubilum* on cotton, 3450.
— — on potato, 2246, 3664d.
— *theobromae* on banana, 2782.
— *tricorpus*, hosts of, 2658.
— — on cotton, 3450.
— —, taxonomy of, 2658.
Vetch (*Vicia*), bean yellow mosaic virus on, in Bulgaria, 1460.
—, *Botrytis cinerea* on, in Czechoslovakia, 1915.
—, *Fusarium oxysporum* on, in N.S.W., 2032f.
—, *Gibberella zeae* on, in Czechoslovakia, 1915.
—, pea enation mosaic and pea leaf roll viruses on, in U.S.S.R., 693.
—, phycomycete and *Pythium debaryanum* on, in N.S.W., 2032f.
*—, *Sclerotinia trifoliorum* on, in U.S.A., pathogenicity of, 2590e.
— spotting, effect of light and temp. on and resemblance of, to *Leptosphaerulina trifolii*, 238.
**Vetiveria zizanioides*, *Gloeocercospora sorghi* on, in India, symptoms of, 594.
Vicia, see Vetch.
— *dasycarpa*, *Erysiphe polygoni* on, 2003.
— *faba*, see Bean, broad.
— *villosa*, *Septoria pisi* on, in Brazil, 1168b.
Victorin, production of, by *Cochliobolus victoriae*, 1855.
Vidden D and in combination as soil disinfectant, 694b.
Vigna catjang, *Phakopsora pachyrhizi* on, 1355.
— *cylindrica*, plum line pattern virus on, retention of infectivity by, 3156.
— *sesquipedalis*, *Fusarium solani* on, 1016.
— *unguiculata*, see Cowpea.
Vinca rosea, ash yellows-type virus can infect, 2590i.
Vine, see Grapevine.
Viola adunca, *Phragmidium* on, similarity of, to *P. mucronatum*, 91.
Violet (*Viola*), *Erwinia carotovora* can infect, 3315.
Virology, methods in, Vol.1...2419.
Viruses, anatomy of, 986g; annotated list of names and synonyms of, 2420; books on, 61, 2098, 2099; changes in peroxidase isozyme patterns induced by, 1744b; chemicals against, 1800; chlorophyll and 18 S protein

levels affected by, 978g; classification of, 2421; detection of, in plants introduced into U.S.A., 66; effect of supplements on infectivity of, 2102; electron microscopy of, 1046; epidemiology of leafhopper transmitted, 986j; host interactions with, 65; lyophilization of, 2104; nomenclature of, 2101, 2421; review of, 395b, 1745d; in Scandinavia, 62; in U.S.S.R., 1042, 1795; serological detection of, 1457; sites of synthesis within cells, 986e; structure of filamentous particles of, 1458; translocation of nucleoproteins of, 2103; transmission of, by dodder, 1448; nematodes, 1059, 1799; vectors, 9b, 67, 1745o, p, 1796, 1798; from leaf sectors, correlated with intracellular inclusions, 1450.
Vitavax against *Corticium solani* on cotton, 2385, 3452; diseases of cereals, 2385; *Tilletia caries*, *T. foetida*, and *Urocystis agropyri* on wheat and *Ustilago hordei* on oats, 2445; *U. nuda* on barley, 1852; as seed treatment for barley, 133, 1480; cotton, 3452; oats, 1480; wheat, 133, 2445; as soil disinfectant, 3452.
— ineffective against *Entyloma oryzae* and *Tilletia barclayana* on rice, 1539; *Ustilago nuda* on barley and wheat, 2445.
—, toxicity of, to barley, 1852.
— versus ceresan, 2445.
— in combination as seed treatment for barley and oats, 1480.
Vitex, against *Botrytis cinerea* on grapevine, 3172.
Vorlex as soil disinfectant, 613, 1731b.
—, effect of, on *Thielaviopsis basicola* on tobacco, 1285.
Vú Ag T1 and Vú Ag T2 against *Venturia inaequalis*, 2197.
Vulpia myuros, *Puccinia graminis* on, 2660.

Wallflower (*Cheiranthus*), *Erwinia carotovora* can infect, 3315.
Wallrothiella arceuthobii, association of, with *Glomerella cingulata* on *Arceuthobium americanum*, 337.
Walnut (*Juglans*), *Cylindrocladium* on, in U.S.A., resemblance of, to *C. scoparium* on *Liriodendron tulipifera*, 3305g.
— diseases in U.S.S.R., 2856.
—, *Erwinia nigrifluens* and *E. rubrifaciens* on, association of bacteriophages with, 2281.
—, *Fusarium* on, in Chile, 3594.
—, *Gnomonia leptostyla* on, in Austria, 2280; Kashmir, 2759; biological cycle of, 917; control, 2280.
—, mycorrhiza of, factors affecting formation, 3349.
—, *Xanthomonas juglandis* on, in Austria, 2280; control, 918, 2280; infection, spread and symptoms of, 918.
Watermelon (*Citrullus vulgaris*), *Alternaria* and *Cercospora* on, in U.S.A., 1365.
—, *Colletotrichum lagenarium* on, races of, 717.
*—, *Erwinia* on, in U.S.A., 2948.
—, *Fusarium equiseti* on, in Israel, pathogenicity of, 1466.
— mosaic virus on cantaloupe, 715.
— — — on lupin, 3653.
— — — 2 on cantaloupe, 2941.
— — — — — on *Chenopodium album* and *C. strictum*, 3652.
— — — — — on watermelon, 1363.
—, *Mycosphaerella melonis* on, in U.S.A., 1365.
[Watermelon], *Pseudoperonospora cubensis* on, in S. Africa, control, 969; U.S.A., factors affecting, 1365.
Wax, emulsified, use of, on potato, 607.
Wheat (*Triticum*), *Agropyron* mosaic virus on, in Germany, hosts of, 71.
—, *Alternaria* on, in India, var. react. to, 2670; U.S.S.R., control, 120.
—, — *tenuis* on, 3306; ?causing 'brown neck', 3087; effect of, on germination and yield, 121.
—, — *triticina* on, in India, 122, 793, 2128; *A. tenuis* associated with, 2128; control, 793, 2128; detailed account of, 122; detection and symptoms of, 2128.
—, *Aspergillus* on, ecological study of, 3426.
—, — *flavus* on, factors affecting, 1467.
—, bacterium on, near to *Enterobacter*, *Pectobacterium*, and *Serratia*, 2683.
—, barley stripe mosaic virus on, 3427.
—, — yellow dwarf virus on, in Denmark, 730b; determination of, 95; effect of, on quality and yield, 1079; susceptibility to and symptoms of, 485; tolerance of, 3300c.
— breeding and vars. in Australia, bulletin on, 3412.
—, *Calonectria nivalis* on, in N.Z., 1095; Pacific North-west, 2681; U.S.A., 2680; U.S.S.R., 3423; control, 2680; ecology of, 2681; effect of plant size on, 497b; factors affecting, 2680, 3423; resistance to, 2661; significance of perithecia of, 2681; var. react. to, 497a, 3423.
—, *Cephalosporium gramineum* on, factors affecting, 3424.
—, *Cercosporella herpotrichoides* on, 2357h; in England, 2585f, 2677; Yugoslavia, 1494; aetiology and incidence of, 1494; control, 794, 2678; effect of direct drilling on, 1843; furidazole and thiabendazole on, 1819; temp. on, 783; effect of, on cropping, 2677; inefficacy of stubble burning against, 394h; inoculation with, 119; resistance to, 2586c; susceptibility to, 3421; var. react. to, 1494, 2585f, 2677.
—, *Claviceps purpurea* on, in France, 118; U.S.S.R., 1478.
—, *Cochliobolus lunatus* on, in India, 2132.
—, — *sativus* on, in India, 121, 2132; N.S.W., 1094; U.S.S.R., 120, 496.
—, *Colletotrichum graminicola* not infecting, 3099.
—, *Corticium solani* on, 126.
—, *Corynebacterium tritici* on, in India, source of infection for, 3089.
—, *Curvularia* on, in India, 3083.
—, — *ramosa* on, in N.S.W., 1094.
—, damping-off of, assessing resistance to, 2133; effect of chlorcholinchloride on, 1497; var. react. to, 1497.
—, diseases in Argentina, 2117; Canada, 2662; India, 2663; W. Australia, 3072; Yugoslavia, 2664; control, 1473, 2662, 3072; pipecolic acid content in relation to resistance to, 2158; review of, 100; susceptibility of high yielding vars. to, 2663; symptoms of, 1473 3072.
—, *Drechslera bicolor* on, in India, 3083.
—, effect of *Penicillium purpurogenum* on respiratory enzymes in, 3360.
—, *Erysiphe graminis* on, in Denmark, 499; India, 498; Italy, 117; U.K., 1091, 3300a; Yugoslavia, 1837, 2664; effect of furidazole

and thiabendazole on, 1819; irradiation on, 792; N-nitrosoethylurea and nicosan-3 on, 1836; of UV radiation on establishment of, 3419; effect of, on yield, 1837; factors affecting, 1820, 1837, 3069; folate and shikimate levels in leaves of, 788; genetics of, 1481; overwintering of, 1837; perithecia of, 499; physiologic races of, 117, 1091, 1837; var. react. to, 498, 1837, 3420a, b.
[Wheat] foot rot in India, 2132; N.S.W., 1094.
— frost damage in N.S.W., 100.
—, fungi on, effect of chlorocholinchloride on, 2461; electron microscopy of, 787; in root region, 1096.
—, *Fusarium* on, in India, 3083; U.S.S.R., 120; Yugoslavia, 2664; factors affecting, 120, 1743q.
—, — *culmorum* on, in N.S.W., 1094; effect of chlorocholinchloride on, 1093.
—, — *dimerum* on, in India, 2132.
—, — *oxysporum* on, in U.S.S.R., 496; effect of preceding crops on, 1495.
—, — *roseum* on, in France, effect of preceding crop on, 99.
—, — — f.sp. *cerealis* 'Culmorum' on, sporulation of, 3430.
—, — *scirpi* on, in U.S.S.R., 496.
—, — *semitectum* on, in India, 2132.
—, — *solani* on, effect of preceding crops on, 1495.
—, — *sporotrichioides* on, in U.S.S.R., 496.
—, *Gibberella fujikuroi* var. *subglutinans* on, in India, 2132.
—, — *zeae* on, in N.S.W., 1094; Qd, 123; U.S.S.R., 496; effect of preceding crops on, 1495; effect of, on yield, 495; var. react. to, 123, 495.
—, *Helminthosporium atypicum* and *H. proliferatum* on, description of, 2457.
—, inhibition of tobacco mosaic virus on *Nicotiana glutinosa* by extract of, 464.
*—, *Khuskia oryzae* on, in Hungary, 1846.
—, *Leptosphaeria herpotrichoides* on, in Yugoslavia, 2664.
—, — *nodorum* on, in Switzerland, 3422; U.S.S.R., 1496; W. Australia, 2130; account of, 494; control, 98, 1092, 3422; effect of chlorocholinchloride on, 1093, 2679; of maneb on, 2130; of seed treatment on, 2129; effect of, on yield, 2129, 2458.
—, — *tritici* on, in U.S.S.R., 1496; W. Australia 2130; Yugoslavia, 2664; control, 2130.
—, maize virus on can infect, 150.
— mosaic virus on Gramineae, 232.
— — — on *Poa annua*, 1822.
— — — on wheat in Japan, 1822; effect of soil fumigation on, 3074; electron microscopy of, 486; isolation of infectious RNA of, 487; maintenance of cultures of, by transfer through root washings, 1080; study on, 1795; transmission of, by soil, 3074; by vectors, 486, 1080.
— — —, soil-borne, on wheat, vector transmission from root washings and soil debris, 101.
—, Mucorales on stored, ecology of, 3426.
—, *Ophiobolus graminis* on, in England, 2677; Hungary, 393a; India, 3083; U.S.S.R., 496; Yugoslavia, 2664; control, 794, 2357b; effect of direct drilling on, 1843; of, on yield, 1375e, 2677, 3408; formaldehyde ineffective against, 2584m; inefficacy of stubble burning against, 394h; method for assessing, 2584o; soil infestation with, 1375e; survival of, 1098b; technique for studying inhibition of, in soil, 125; variation in, 1099b.
[Wheat], *Penicillium* on stored, ecology of, 3426.
—, *Periconia circinata* on, C.M.I. description of, 3030.
—, *Pseudomonas rubrilineans* not infecting, 804.
—, *Puccinia agropyri* on, resistance to, 95.
—, — *graminis* on, in Afghanistan, 3079; Bulgaria, 1485; Canada, 108, 3075; Colombia, 1825; Czechoslovakia, 1824; England, 106; France, 96c; India, 111, 795, 2670; Pakistan, 2668; Portugal, 490; Rhodesia, 3c; Switzerland, 1484; U.S.A., 3078; U.S.S.R., 1815, 3414; W. Europe, 490; Yugoslavia, 2664; breeding against, 3414; classification of, 3413; control, 1399, 2441, 3413; culture of, 2449; differentiation of, 3413; effect of dinitro(1-methyl heptyl) phenyl on uredospores of, 785; of sowing time on, 786; effect of, on nuclear constituents, 1828; on RNA synthesis, 104, 3666b; electron microscopy of, 787, 1082; factors affecting, 106, 1086; affecting penetration of, 2452; formation of appressoria by, 103; forms of, 1815; genetics of, 107, 1481, 1482, 1483, 2667; of resistance to, 2451; germination of uredospores of, 103; hosts of, 3413; identification of biotypes of, 110; incorporation of ^{32}P in nucleic acid fractions, 3666c; infra-red spectra of uredospores of different races of, 109; lomasomes in leaves infected by, 1829; measurement of O consumption of, 3077; metabolism of, 105, 1083, 1084, 1085, 1823; method of inoculation, 1484; mutation for colour in, 489, 2669; nucleoprotein changes in leaf, 1827; occurrence of, 3413; penetration by, 2665; physiologic races of, 96c, 108, 111, 491, 795, 1485, 1824, 1825, 2668, 3078, 3079, 3404; premature death caused by, 2666; progressive increase in virulence in, 1483; resistance to, 96d; technique for inoculating, 1445; var. react. to, 491, 785, 796, 1826, 2450, 2670, 3078, 3412, 3414, 3415; virulence of, 2668.
—, — — + *Tilletia contraversa* on, antagonism between, 488.
—, — *recondita* on, in Afghanistan, 3079; Canada, 3075; Czechoslovakia, 2454; India, 111, 795, 2670; Netherlands, 1h; Pakistan, 3080; Portugal, 493; Rumania, 1377a; U.S.S.R., 1815, 3414, 3416; Yugoslavia, 2664; breeding against, 1489, 3414; classification of, 3413; control, 2441, 3413; differentiation of, 3413; effect of furidazole on, 1819; of light on germination of uredospores of, 112; of temp. on longevity of uredospores of, 2453; of thiabendazole on, 1819; effect of, on yield, 2125, 2670; enzyme and protein changes in infected leaves of, 2673; factors affecting penetration of, 2452; forms of, 1815; genetics of, 1481, 1488, 1830, 1831; hosts of, 3413; lomasomes in leaves infected by, 1829; method for rapid classification of cultures, 2672; occurrence of, 3413; physiologic races of, 111, 491, 492, 493, 795, 1377a, 2454, 2671, 3079, 3080, 3416; spec. react. to, 113, 1486; var. react. to, 113, 491, 492, 789, 795, 1486, 1826, 1830, 2670, 3414, 3415.
—, — — on, *Eudarluca filum* parasitizing, in Yugoslavia, 2674.

[Wheat, *Puccinia recondita*] +wheat streak mosaic virus on, effect of, on yield, 2125.
—, — *striiformis* on, in Austria, 2030; Denmark, 114; England, 2585b; Europe, 114; Germany, 114; India, 111, 795; Iran, 1835; Rumania, 1377b; U.S.A., 790; U.S.S.R., 1815, 3414; Yugoslavia, 2664; breeding against, 1834, 2585a, 3414; classification of, 3413; control, 3413; differences in reaction between first and second leaves in crosses of, 3081; differentiation of, 3413; effect of N-nitrosoethylurea and nicosan-3 on, 1836; effect of, on root systems, 1087; on yield, 116; evaluation of resistance to, 1833; factors affecting susceptibility to, 790; genetics of, 115, 1088, 1089, 1832, 3081; hosts and occurrence of, 3413; overwintering of, 1377b; physiologic races of, 1h, 111, 114, 795, 1835, 2585h, 3300b, 3418; var. react. to, 116, 795, 1088, 1490, 1826, 1832, 3300b, 3414, 3415.
—, *Pythium aphanidermatum* on, pathogenicity of, 2442.
*—, — *arrhenomanes* on, in Queensland, 127; effect of seed treatment on, 2442.
—, — *debaryanum* on, in Queensland, 127.
—, — *graminicola* on, in India, 2132, 2682.
*—, — *myriotylum* on, susceptibility to, 2434.
—, — *paroecandrum* on, in Queensland, 127.
—, *Rhizoctonia* on, in India, 3083.
—, rice hoja blanca virus on, transmission of, by vectors, 3103.
*—, *Sclerospora macrospora* on, in India, 3088.
—, *Sclerotinia borealis* on, in U.S.A., 2680.
—, *Sclerotium rolfsii* on, in India, 1845, 2132, 3083; control, 1845; factors affecting, 1845; physiologic races of, 1381i; var. react. to, 1845.
—, *Septoria* on, in U.S.S.R., key for identification of, 1496.
— streak mosaic virus not causing maize kernel red streak disease, 151.
— — — — on *Bromus* and *Festuca*, 3411.
— — — — on Gramineae, 232, 3411.
— — — — on wheat in U.S.S.R., 1474, 2124; Yugoslavia, 2664; effect of, on yield, 2125; purification of, 3410; reservoirs for and transmission of, by vectors, 3411; var. react. to, 2447.
— — — — +*Puccinia recondita* on wheat, 2125.
— striate mosaic virus, multiplication of, in vector, 102, 2123.
— — — — on wheat, properties of, 3073; technique for preparing antiserum, 2448.
— — — — (European) on oats, 3665d.
— stripe mosaic virus in U.S.S.R., hosts of, 3403.
— stunt virus on barley, oats, and rye, 1474.
— — — on wheat in U.S.S.R., 1474.
—, *Tilletia* on, control, 128, 1840, 2446; detection of, 128.
—, — *caries* on, in Poland, 3406; control, 1491, 2445, 3406; effect of Cu on, 2127; of light on spore germination of, 1838; of Mn on, 2127.
—, — *contraversa* on, control, 1090, 2357b; effect of medium on spore germination and development of, 2455; factors affecting viability of spores of, 1842; failure of germinated teliospores to bunt wheat, 1492; var. react. to, 1090.
[Wheat, *Tilletia contraversa*] +*Puccinia graminis* on, antagonism between, 488.
—, — *foetida* on, control, 1491, 1839, 2445, 3082; effect of quintozene and quintozene-thiram on, 2134; factors affecting, 791; new race of, 3082; var. react. to, 3082.
—, *Typhula idahoensis* on, in U.S.A., control, 2680; effect of plant size on resistance to, 497b; var. react. to, 497a.
—, — *incarnata* on, 497a; in U.S.A., 2680; control, factors affecting, 2680; resistance to, 2661.
—, — *ishikariensis* on, resistance to, 2661.
—, Uredinales on, control, 3303.
—, *Urocystis agropyri* on, control, 2445.
—, Ustilaginales on, in Germany, 1479.
—, *Ustilago* on, detection of, 128.
—, — *nuda* on, in Bulgaria, 2456; Poland, 3406; U.S.S.R., 2456; Yugoslavia, 2664; control, 133, 2430, 3406; by early sowing, 129; estimating resistance to, 2676; factors affecting, 2456; resistance of, to anaerobic conditions, 483; technique for determining viability of, 2444; for inoculating, 130, 132a, 2443; var. react. to, 2443, 2456, 2675, 3415; vitavax ineffective against, 2445.
—, — — f.sp. *durum* on, proposed as new form for, 1493.
—, *Verticillium* on, resistance to, 478.
— ×*Agropyron intermedium*, *Puccinia recondita* on, transmission of resistance to wheat by translocation, 1489.
— straw, *Cephalosporium gramineum* on, antagonism of, to *Fusarium culmorum* and *Trichoderma*, 401a; *Fusarium* and *Trichoderma* associated with, 3425; spread of, 2460; survival of, 2459, 2460, 3425.
— —, *Cercosporella herpotrichoides* on, survival of, 1844.
— —, *Cochliobolus sativus* on, 124, 3085.
— —, — *spicifer* on, factors affecting, 124.
— —, fungi in compost of, 1006a, b.
— —, *Fusarium* on, factors affecting, 2459.
— —, — *culmorum* on, antagonism of, to *Cephalosporum gramineum* and *Trichoderma*, 401a; factors affecting, 124.
— —, — *roseum* f.sp. *cerealis* 'Culmorum' on, in U.S.A., colonization of, 2131.
— —, *Gibberella zeae* on, factors affecting, 124; recovery of, from 3086.
— —, *Ophiobolus graminis* on, survival of, 1844.
— —, *Penicillium brevicompactum* and *P. steckii* on, factors affecting, 2459.
— —, *Trichoderma* on, antagonism of, to *Cephalosporium gramineum* and *Fusarium culmorum*, 401a; factors affecting, 2459.
White oil in combination ineffective against beet yellows virus on beet, 2901.
Wild cucumber (*Ecballium elaterium*) mosaic virus on pumpkin, 3614.
**Wisteria*, tobacco mosaic virus on, in U.S.A., transmission of, to *Chenopodium*, 1052.
Wood pulp, fungi on, effect on, 935; growth of, 936; succession on, 676.

Xanthomonas albilineans, longevity of, in distilled water, 305.
— — on sugarcane, see Sugarcane.
— *alfalfae* on clover, 1912.
— *campestris*, effect of antibiotics on, 1338.
— — on cabbage, 996, 3622.

[*Xanthomonas campestris*], resistance of, to tylosine and vancomycin, 743.
*— *celebensis* var. *gossypii* on cotton, 534a, b.
— *citri* on citrus, see Citrus.
— *coracanae* on *Eleusine coracana*, 3101.
— *cyamopsidis* on *Cyamopsis psoraloides*, 2012.
— *?dieffenbachiae* in Canada, intercepted from Fla, 3346.
— *fragariae* on strawberry, 862.
— *juglandis* on walnut, 918, 2280.
— *malvacearum*, effect of phosphoric acid derivatives on, 1763.
— — on cotton, see Cotton.
*— — on *Lochnera pusilla*, 218.
— *manihotis* on cassava, 726.
— *musacearum* on banana and *Ensete ventricosum*, 1389.
— *oryzae*, bacteriophages of, 2713.
— —, control, 3339.
— — on rice, see Rice.
— —, *X. translucens* f.sp. *oryzae* proposed for, 813.
— *oryzicola* on rice, 813, 1548.
— —, *X. translucens* f.sp. *oryzae* proposed for, 813.
— *pelargonii* on *Pelargonium*, *P. graveolens*, and *P. peltatum*, 842.
— *phaseoli*, effect of antibiotics from *Trichoderma* spp. on, 1405.
— — on bean, see Bean.
— — var. *fuscans* on bean, 1724, *1747a, *2915.
— — var. *sojense* on soybean, see Soybean.
— *pruni*, bacteriophage of, 3319.
— — on peach, 3318.
— —, protein patterns of, 3680.
— *rubi-idaei* on raspberry, 3510.
— *sesami* on sesame, 593, 2230.
— *translucens* f.sp. *hordei* on *Agropyron*, 1911.
— — f.sp. *oryzae*, proposed for *X. oryzae* and *X. oryzicola*, 813.
— *vasculorum* on sugarcane, see Sugarcane.
— — on *Thysanolaena maxima*, 3198b.
— *vesicatoria* on *Capsicum*, see *Capsicum*.
— — on tomato, see Tomato.
*— *vitians* on lettuce, 3a.
Xiphinema americanum, associated with cherry rasp leaf disease, 3502.
— — transmitting peach yellow bud mosaic virus, 571; tobacco ringspot virus, 3208.
— *bakeri* associated with *Pseudotsuga menziesii* corky root disease, 2881.
— *diversicaudatum* associated with strawberry latent ring spot virus, 3508.
— — in soil, 68.
— — transmitting *Arabis* mosaic virus, 69, 859, 1059, 1060; carnation ring spot virus, 221; strawberry latent ring spot virus, 1060.
— *index*, technique for inoculating with grapevine fanleaf virus, 2537.
Xylariaceae on fruit, 1598.
Xyleborus transmitting *Ceratocystis fimbriata*, 1470a.
2,4-xylenol against *Agrobacterium tumefaciens* on fruit and *Pseudomonas savastanoi* on olive, 3322.
Xylia xylocarpa, decay resistance of, 677.

Yam (*Dioscorea* spp.), book on, 1371.
— brown spot, symptoms of and virus-like particles in, 3301m.
[Yams], *Colletotrichum gloeosporioides* f.sp. *alatae* on, effect of $ZnSO_4$ on, 2062.
—, *Glomerella cingulata* on, effect of vitamins on, 432.
Yeast, selective culture of, 2087a.
Yew (*Taxus baccata*), *Phacidium taxicolum* on, in Canada, pathogenicity of, 2884.

Zea mays, see Maize.
Zerlate versus makrolin, 2983.
Zinc deficiency associated with citrus decline, 199.
— — in rice, 1113u.
—, effect of, on *Corynebacterium sepedonicum*, 4b; *Helminthosporium*, 2063; resistance of cotton to *Verticillium*, 212.
— in combination against *Cochliobolus sativus* and *Erysiphe graminis* on barley, 1849; *Phytophthora infestans* on potato, 3e; *Puccinia allii* on chives, 3668c; *P. hordei*, *Pyrenophora teres*, and *Rhyncosporium secalis* on barley, 1849; as soil disinfectant, 3093.
— — —, effect of, on maize dwarf mosaic virus on maize, 3093; on yield of *Mycosphaerella arachidis*-infected groundnut, 3d.
— chloride, against strawberry crinkle virus on strawberry, 265.
— methiram against *Septoria lycopersici*, 1377i; *Uromyces dianthi*, 397f.
— metiram ineffective against *Phytophthora infestans* on potato, 3e.
— nitrate, effect of, on *Leptosphaeria salvinii*, 1545.
— sulphate against fungi on cucumber, 2581; strawberry crinkle virus on strawberry, 265.
— —, effect of, on *Fusarium oxysporum* f.sp. *lycopersici*, 319; on. *F. o.* f.sp. *vasinfectum*, 2726; on *Leptosphaeria salvinii*, 1545; on rice khaira disease, 3111.
— sulphide against *Sphacelotheca reiliana* and *Ustilago maydis* on maize, 3434.
Zincotox against *Peronospora tabacina*, 310, 1280.
Zineb against *Alternaria* on tomato, 2344; *Botrytis* on *Vaccinium angustifolium*, 858; *B. cinerea* on grapevine, 3173; on persimmon, 2786; *Cercospora beticola*, 1341; *C. gigantea* on citrus, 2960c; *Coniella diplodiella* on grapevine, 1935; *Cycloconium oleaginum*, 2788; *Cylindrosporium maculans* on mulberry, 163o; *Dibotryon morbosum* on plum, 573; *Elsinoe ampelina* on grapevine, 3171; *E. veneta* on raspberry, 1377n; *Fusarium* on grapevine, 3173; *Gnomonia leptostyla* on walnut, 2280; *Helminthosporium heveae*, 1256; *Mycosphaerella berkeleyi* on groundnut, 3285; *M. fragariae* on strawberry, 2781; *Myrothecium roridum* on *Hypocyrta glabra*, 227; *Peronospora destructor* on onion, 1357; *P. parasitica* on cabbage, 3616; *P. tabacina*, 311, 624, 1279, 2256, 2257; *Pestalotiopsis palmarum* on coconut, 3528; *Phomopsis diospyri* on persimmon, 2786; *Phytophthora* on *Hevea* rubber, 1258; *P. infestans* on potato, 607, 1235a, 1396, 1398; on tomato, 1398, 1677; *Plasmopara viticola*, 1396, 1398, 2379a; *Polystigma rubrum* on plum, 1200; *Puccinia pringsheimiana* on gooseberry, 1927; *Rhacodiella vitis* on grapevine, 1934; *Rhizoctonia* on grapevine, 3173; *Sclerotinia* on *Vaccinium angustifolium*, 858; *Septoria lycopersici*, 1377i, 1968; *S. ribis* on

gooseberry, 2772; *Stagonospora curtisii* on *Narcissus*, 390f; *Trichometasphaeria turcica* on maize, 1113a; *Uromyces dianthi*, 397f; *Venturia inaequalis*, 1396, 1398; *Xanthomonas juglandis*, 2280; as seed treatment for apple, 1377m; wheat, 2357b; as treatment for onion bulbs, 2339.
[Zineb] constituent of blitane new, 1236.
— ineffective against *Puccinia coronata*, 2469.
—, methods for determining moisture content of, 3334.
—, persistence, properties, and retention of deposits of, 390s.
— residues in crops, 393d.
— in combination against bacterial spotting of mushroom, 3662; *Botrytis cinerea* on *Chrysanthemum*, 390e; on grapevine, 1743i; *Cercospora* on grapevine, 274; *C. citrigrisea* on citrus, 2960c; *Fabraea maculata* on pear and quince, 3495; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Itersonilia perplexans* on *Chrysanthemum*, 390e; *Nectria radicicola* on cyclamen, 3459c; *Peronospora destructor* on onion, 965; *Plasmopara viticola*, 1743i, 2791, 2792; *Thielaviopsis basicola* on cyclamen, 3459c; *Uncinula necator*, 274, 1743i.
— — —, use of, on currant, potato, and tomato, 19.
— 50W against damping-off of pine and spruce, versus captan 50W and thiram SF-75, 341.
[Zineb] 80 against *Phytophthora infestans* on tomato, 2837.
Zinebtan against *Peronospora tabacina*, 310, 1280.
Zingiber officinalis, see Ginger.
**Zinnia*, *Mycosphaerella ligulicola* on, 1154.
—, *Pseudomonas solanacearum* on, 280.
—, tobacco etch virus on, nuclear crystals in, 2423.
Ziram against *Deuterophoma tracheiphila*, 1883b; *Elsinoe ampelina* on grapevine, 1634, 3171; *Fusarium roseum* and *F. solani* on cantaloupe, 2582; *Fusicoccum amygdali* on almond, 854; *Leptosphaeria salvinii* on rice, 3336; *Puccinia pringsheimiana* on gooseberry, 1927.
—, effect of, on pollen germination of *Vaccinium angustifolium*, 858.
—, methods for determining moisture content of, 3334.
— in combination against *Cercospora* on grapevine, 274; *Plasmopara viticola*, 2792; *Uncinula necator*, 274.
Zizania latifolia, *Ustilago esculenta* on, in U.S.S.R., symptoms of, 7214.
Zizyphus jujuba, *Glomerella cingulata* on, symptoms of, 3170.
Zonites algirus, inhibitor of TMV from, 1275.
**Zoysia*, *Puccinia zoysiae* on, in U.S.A., 554.
*— *japonica*, *Puccinia zoysiae* on, in Hawaii, *1067; U.S.A., 236.